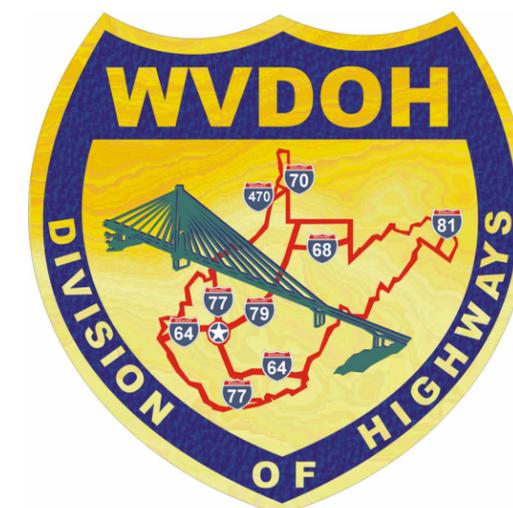




**WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STANDARD DETAILS BOOK
VOLUME II
SIGNING, SIGNALS, LIGHTING AND MARKING**



ISSUE DATE: MARCH 1, 1996

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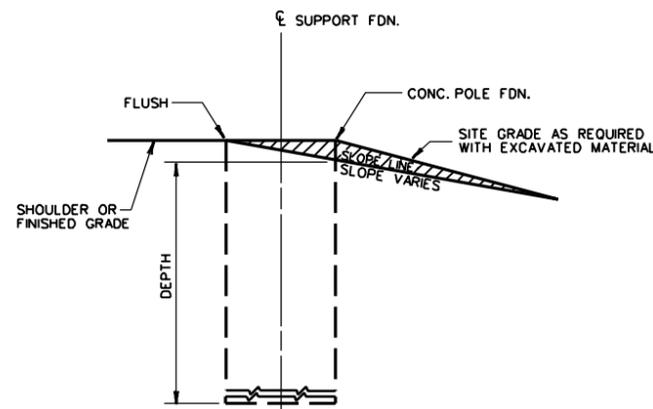
DRAWING NUMBER	TITLE		DRAWING NUMBER	TITLE
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No additions, deletions or revisions are to be made on these Standards on a job-to-job basis.
Any changes are to be made by the proper authority named by the Director of Traffic Engineering Division.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

FOOTING REQUIRED PER POLE

BEAM SIZE	DIMENSION W	DIMENSION H	CUBIC METERS OF CONCRETE	VERTICAL STEEL
S100X11.5	0.5	1.3	0.26m ³	4- #13's
W150X18.0	0.75	1.3	0.57m ³	6- #13's
W200X26.6	0.75	1.7	0.75m ³	6- #19's
W250X32.7	0.75	2.0	0.88m ³	6- #25's



FOOTER IN SLOPE

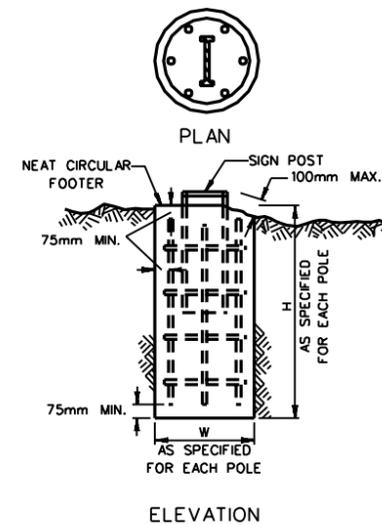
SITE GRADE OPTION SHOWN, OR USE CONFORM TO SLOPE OPTION AS SHOWN ON TE1-3A

GENERAL NOTES

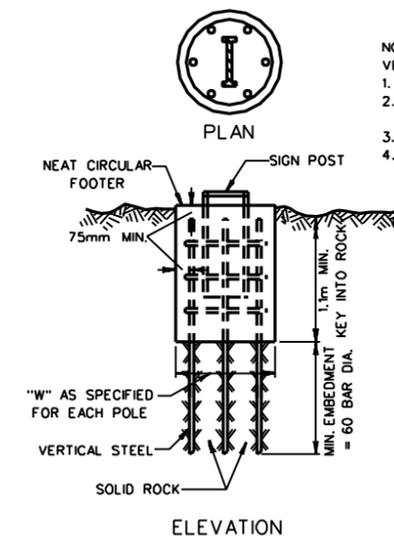
DEPTH OF FOUNDATIONS IS BASED ON AN ASSUMED SOIL SUCH AS MEDIUM CLAY OR SANDY CLAY. THESE FOUNDATIONS MAY BE USED IN OTHER TYPE SOILS PROVIDING THAT THE SOILS RESISTANCE TO LATERAL LOADS IS NOT LESS THAN THAT OF MEDIUM CLAY, OR A MAXIMUM BEARING OF 14 650 Kg/m² FOOTINGS SHALL BE DEEPENED AS DIRECTED BY THE ENGINEER TO ADAPT TO LOCAL SOIL CONDITIONS.

DEPTH OF FOOTINGS SHALL BE MEASURED FROM THE DOWNHILL SIDE OF THE SLOPE AS SHOWN ON THE DRAWING.

VERTICAL BARS SHALL BE EQUALLY SPACED AROUND THE CIRCUMFERENCE OF THE FOUNDATION WITH 75mm MINIMUM CLEARANCE FROM FACE OF CONCRETE TO VERTICAL BARS. VERTICAL BARS SHALL BE TIED WITH #13 HOOP BARS AT 300mm CENTERS. THE #13 HOOP BARS SHALL HAVE A 300mm MINIMUM LAP.

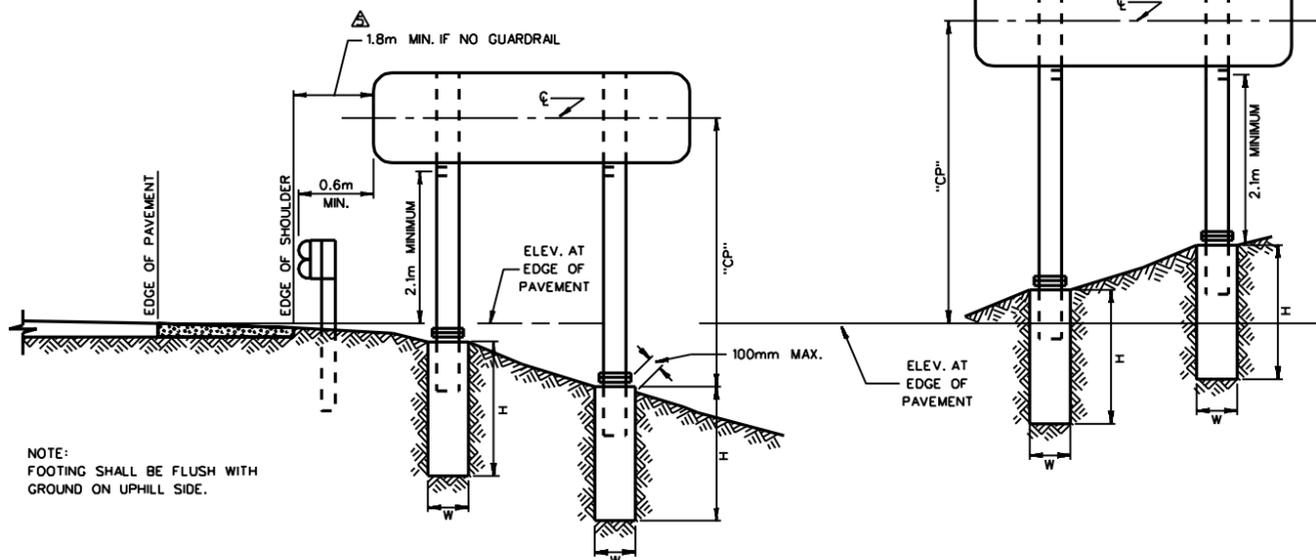


FOOTING DETAIL



ALTERNATE DESIGN FOOTING DETAIL IN SOLID ROCK

- NOTE:
VERTICAL BARS IN SOLID ROCK SHALL BE SET AS FOLLOWS:
1. DRILL HOLE TWICE BAR DIAMETER AND FILL WITH WATER.
 2. WHEN HOLE IS FULLY SATURATED, BLOW WATER OUT AND FILL 2/3 DEPTH WITH SAND CEMENT MORTAR.
 3. INSERT BAR AND CONSOLIDATE MORTAR.
 4. FILL HOLE TO TOP WITH MORTAR.



NOTE:
FOOTING SHALL BE FLUSH WITH GROUND ON UPHILL SIDE.

- ▲ ADDED HORIZONTAL CLEARANCES, CHANGED TITLE
- ▲ REVISED FOOTER DIMENSIONS AND REINFORCING
- ▲ SLIGHT REVISIONS - NEW W SHAPES
- ▲ REVISED CLEARANCE NOTES, ADDED UPHILL RQMNTS, DELETED CONC. AND REBAR NOTES
- ▲ CHANGED CLEARANCE 4' TO 6'
- ▲ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS STANDARD DETAIL BREAKAWAY SIGN SUPPORTS FOUNDATIONS

PREPARED: 06/00/67

REVISIONS
04-10-75
▲ 10-22-75
▲ 11-08-76
▲ 11-17-78
▲ 01-04-93
▲ 09-10-93
▲ 06-06-94

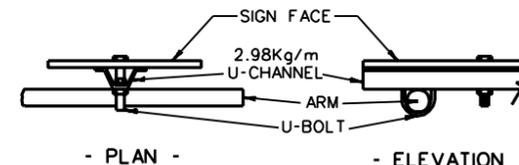
STANDARD SHEET TE1-3C

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

MARKER	DESCRIPTION
P	600mmx300mm CARDINAL TO JCT 600mmx300mm 525mmx375mm
Q	600mmx600mm U.S. OR STATE OR INTERSTATE ROUTE MARKER OR 750mmx600mm
R	525mmx375mm DIRECTIONAL ARROW

LOCATION NOTES:

1. VERTICAL SPACING BETWEEN SIGN PANELS SHALL BE 25mm.
2. WHEN THE VERTICAL SUPPORT POLE IS MOUNTED AT THE BACK EDGE OF A SIDEWALK, THE SIGNS SHALL NOT PROJECT CLOSER THAN 150mm FROM THE FRONT EDGE OF THE SIDEWALK.
3. TYPES 6, 7, 8 AND 9 PIPE POSTS ARE TO BE PROTECTED (E.G. GUARDRAIL) OR USED IN LOW SPEED ENVIRONMENTS.



GENERAL NOTES:

- PIPE POSTS SHALL BE PLACED 1.2m BEHIND GUARDRAIL, OR 0.6m BEHIND CURB, OR OUTSIDE THE CLEAR ZONE AS DEFINED IN TABLES 3.1 AND 3.2 OF THE "ROADSIDE DESIGN GUIDE" (UNLESS OPERATING SPEED LESS THAN 56.33Km/hr).

PIPE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 53, TYPE E OR S, GRADE B. HYDROSTATIC TESTS ARE NOT REQUIRED.

PLATES FOR BASE CONNECTION SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M270/M, GRADE 250.

- ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 325M AND THE REQUIREMENTS OF SECTION 709.24 OF THE SPECIFICATIONS. NUTS AND WASHERS SHALL BE AS RECOMMENDED IN ASTM A 325M.

TIGHTEN ALL HIGH STRENGTH BOLTS BY TURN OF NUT METHOD IN ACCORDANCE WITH SECTION 615 OF THE SPECIFICATIONS.

ALL SHAPES AND PLATES SHALL BE GALVANIZED PER ASTM A173. ALL BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AS PER ASTM A153.

WELDING:

ALL WELDING SHALL BE DONE IN ACCORDANCE WITH THE WELDING SPECIFICATIONS OF SECTION 658, OVERHEAD SIGN STRUCTURES. ALL WELDS SHALL DEVELOP 100% STRENGTH OF THE MATERIAL BEING JOINED.

FRICION CAPS:

CAP MAY BE FABRICATED FROM EITHER HOT ROLLED OR COLD ROLLED STEEL SHEETS. FOR PIPE SIZES DN80 AND SMALLER THE MINIMUM SHEET METAL THICKNESS SHALL BE 0.6mm.

THE RIM EDGES SHALL BE REASONABLY STRAIGHT AND SMOOTH.

CAPS SHALL BE SIZED AND FORMED IN SUCH A MANNER AS TO PRODUCE A DRIVE-ON FRICTION FIT AND HAVE NO TENDENCY TO ROCK WHEN SEATED ON THE PIPE. THE DEPTH SHALL BE SUFFICIENT TO GIVE POSITIVE PROTECTION AGAINST THE ENTRANCE OF RAINWATER. THEY SHALL BE FREE OF SHARP CREASES OR INDENTATIONS AND SHOW NO EVIDENCE OF METAL FAILURE.

- CAPS SHALL HAVE AN ELECTRODEPOSITED COATING OF ZINC IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM B633, CLASS 12..

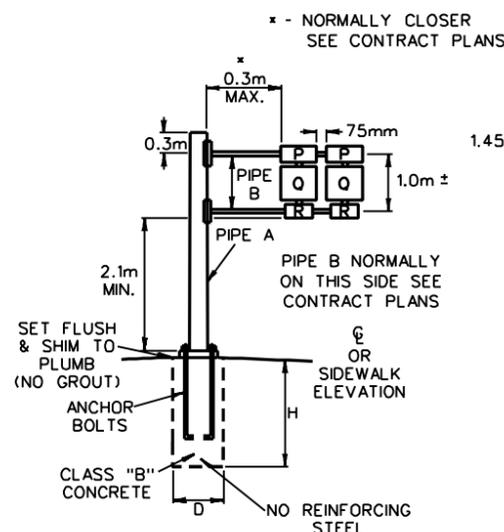
FOOTINGS:

ALL FOOTINGS SHALL BE CONCRETE IN ACCORDANCE WITH SECTION 657, AND ARTICLE 657.5.1 OF THE SPECIFICATIONS.

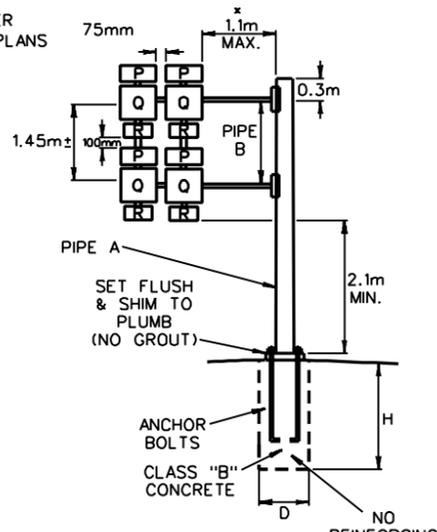
MATERIAL:

ALL PLATES, ETC. TO BE AASHTO M270/M, GRADE 250. ANCHOR BOLTS SHALL MEET SUBARTICLE 657.2.2.9 OF THE SPECIAL PROVISIONS.

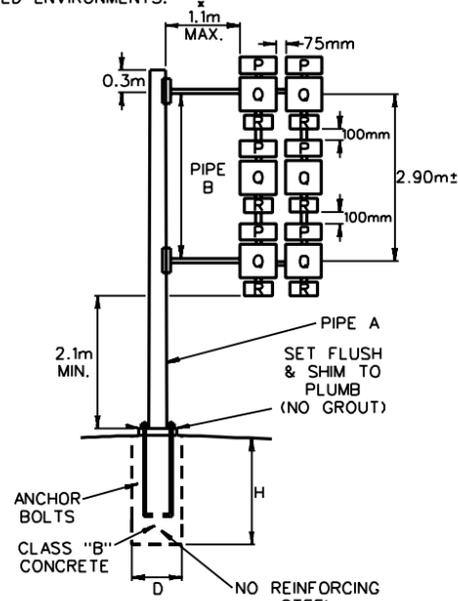
- WHOLE SHEET GENERALLY
- NOTE 2 - 6
- CHANGE GENERAL NOTE
- REVISED DESCRIPTION AND MAX. CRITERIA
- ADDED CLEARANCE NOTE, REVISED H.S. BOLTS NOTES, CAPS NOTE
- ADDED METRIC



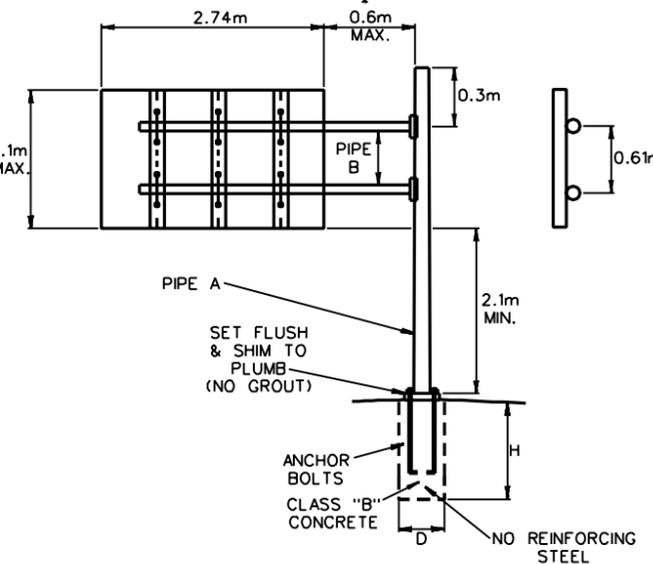
TYPE 6



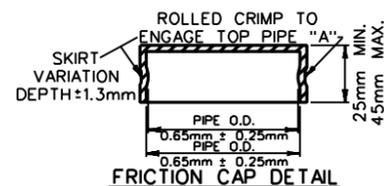
TYPE 7



TYPE 8



TYPE 9



POST TYPE	GUSSETS							
	a	d	e	v	J	K	S	T
6	114	45	19	13	54	13	6.4	51
7 & 9	167	73	19	13	83	13	6.4	80
8	194	86	19	13	95	13	6.4	92

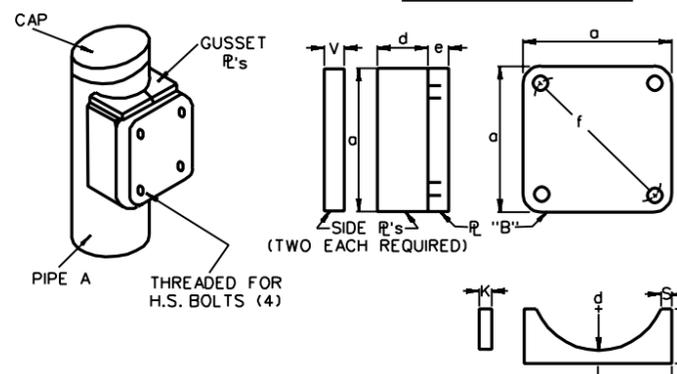
POLE ATTACHMENT SCHEDULE

(INCHES)

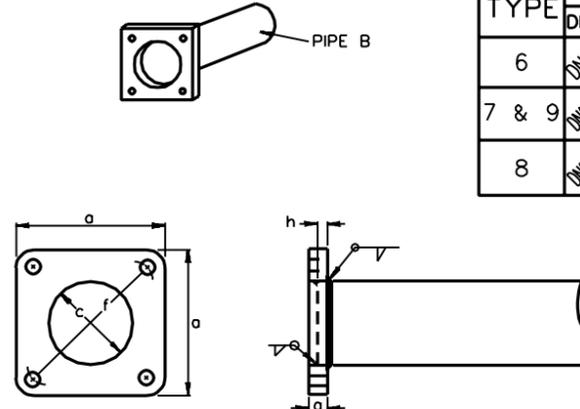
POST TYPE	PIPE A		PIPE B		FOUNDATION		ANCHOR BOLT				BASE PLATE					
	DIA.	SCH.	DIA.	SCH.	D	H	DIA.	L	H	U	G	A	C	F	G	H
6	DN80	40	DN40	40	0.3m	0.9m	19.05	840	75	75	155	178	90	152.4	25	19
7 & 9	DN125	40	DN65	40	0.5m	1.4m	25.40	1120	100	155	205mm MIN.	305	143	254.0	25	19
8	DN150	40	DN80	40	0.5m	2.0m	31.75	1370	155	155mm TO 205mm	255mm MIN.	305	171	254.0	25	19

SUPPORT AND BASE PLATE SCHEDULE

(mm)



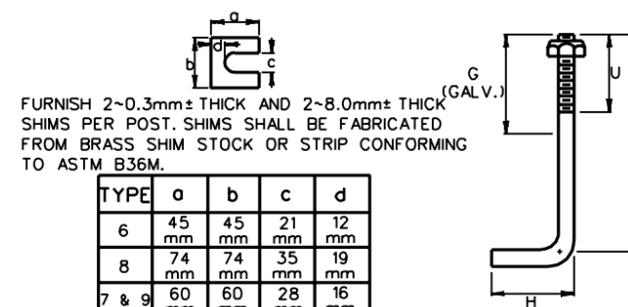
TYPICAL POLE ATTACHMENT DETAILS FOR CANTILEVER ARM



POST TYPE	a	c	g	h	f	ATTACHMENT BOLTS (HEX. HEAD)
6	114mm	51mm	19mm	13mm	101.6mm	15.875mmx44.45mm
7 & 9	167mm	75mm	19mm	13mm	152.4mm	19.05mmx44.45mm
8	190mm	90mm	19mm	13mm	152.4mm	22.225mmx44.45mm

ARM PLATE SCHEDULE

(mm)



SHIM DETAIL & SCHEDULE

(mm)

TYPICAL ANCHOR BOLT

**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
PIPE POSTS
CANTILEVER**

PREPARED: 11/00/73

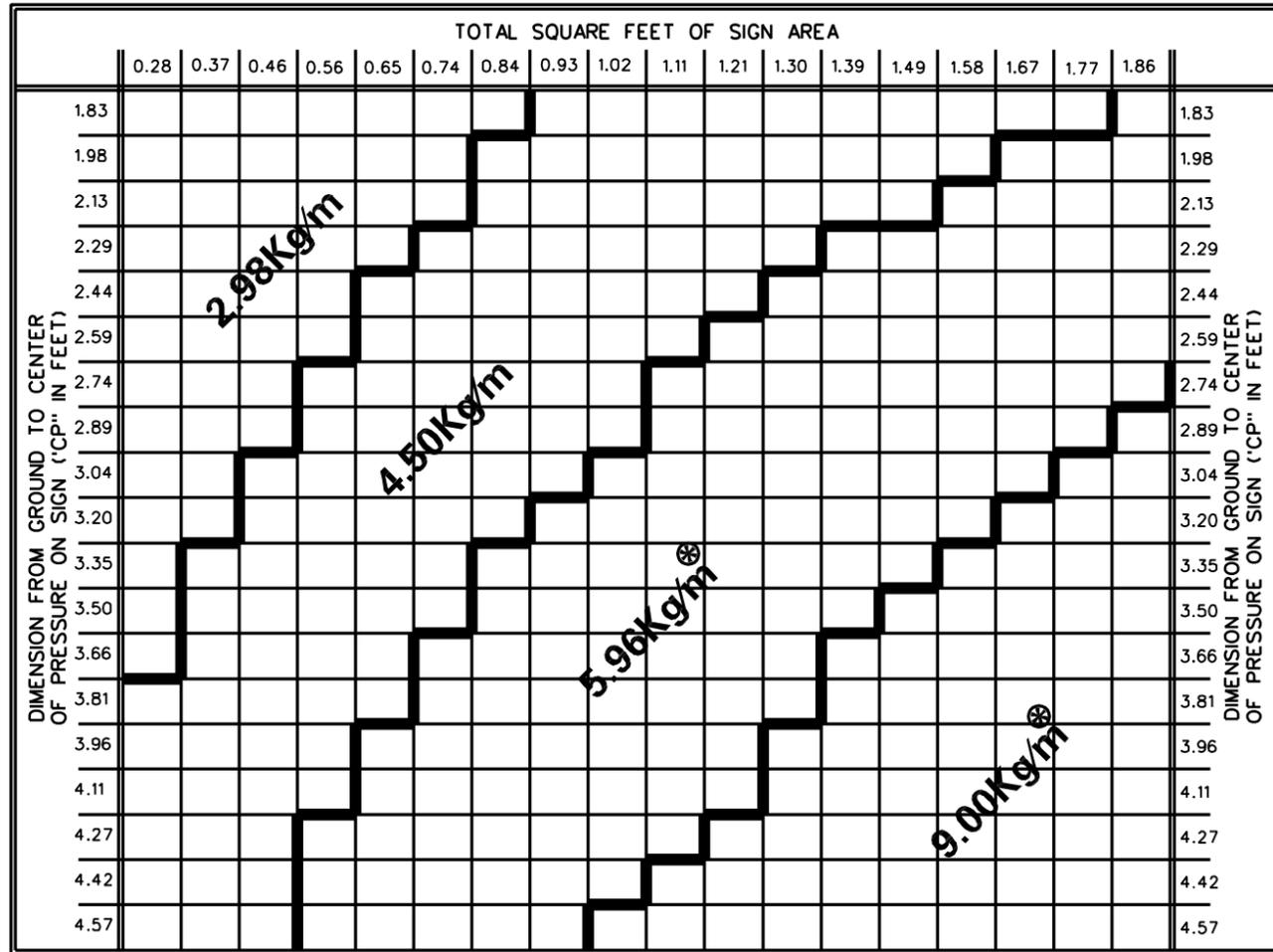
REVISIONS

02-06-76
11-08-76
07-07-89
03-03-93
09-10-93
06-07-94

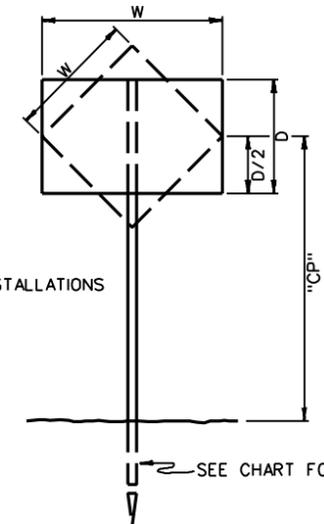
STANDARD SHEET TE1-5B

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

SIGN POST SECTION REQUIRED (ONE SUPPORT)



POST SECTION	DEPTH DRIVEN
2.98Kg/m	0.9m
4.50Kg/m	1.1m
5.96Kg/m	1.1m
9.00Kg/m	1.1m

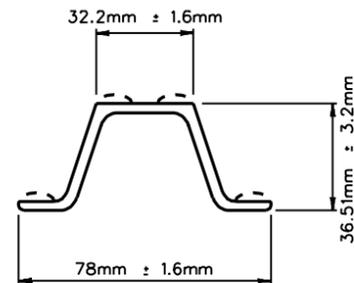


NOTES:

ALL SUPPORTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123..

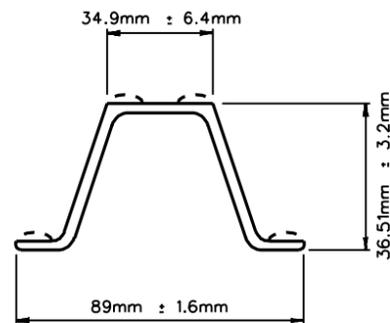
DEPTHS DRIVEN ARE BASED ON AVERAGE SOIL CONDITIONS. DEPENDING UPON ACTUAL SOIL BEARING IN THE FIELD, THE ENGINEER MAY REQUIRE THAT THE DEPTH DRIVEN BE INCREASED TO 1.5m. WHEN THE POST(S) ARE BEHIND GUARDRAIL, THE DEPTH DRIVEN MAY BE INCREASED UP TO 1.5m.

⊗ CAN BE USED IF THE SUPPORTS ARE LOCATED OUTSIDE OF THE CLEAR ZONE AS DEFINED IN TABLES 3.1 AND 3.2 OF THE "ROADSIDE DESIGN GUIDE". IF USED INSIDE OF THE CLEAR ZONE, THE SUPPORTS MUST BE EITHER BEHIND GUARDRAIL, CURB, OR THE OPERATING SPEED MUST BE LESS THAN 55 Kg/h.



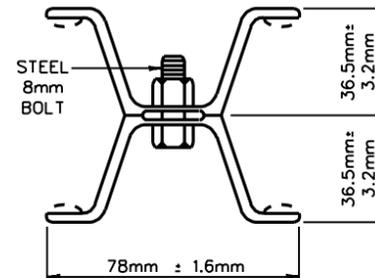
SIGN POST 2.98Kg/m

WT./FT. = 2.98Kg/m
SEC. MOD. X-X = 3525mm³ ±5%
SEC. MOD. Y-Y = 4540mm³ ±5%



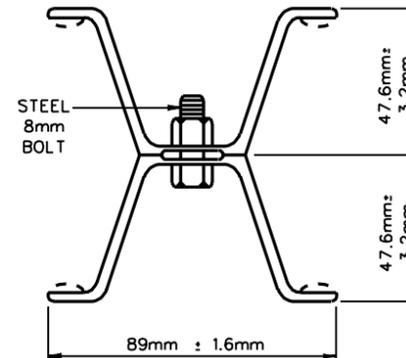
SIGN POST 4.50Kg/m

WT./FT. = 4.50Kg/m
SEC. MOD. X-X = 6655mm³ ±5%
SEC. MOD. Y-Y = 8525mm³ ±5%



SIGN POST 5.96Kg/m BB

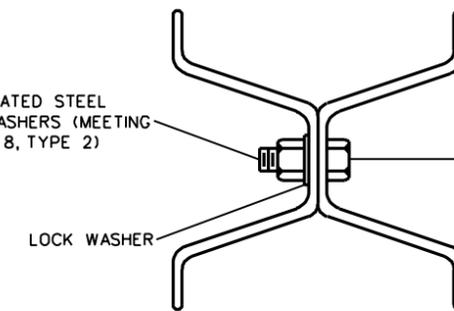
WT./FT. = 5.96Kg/m BB
SEC. MOD. X-X = 11,210mm³ ±5%
SEC. MOD. Y-Y = 8440mm³ ±5%



SIGN POST 9.00Kg/m BB

WT./FT. = 9.00Kg/m BB
SEC. MOD. X-X = 21,630mm³ ±10%
SEC. MOD. Y-Y = 16,455mm³ ±5%

⚠ 8mm Ø CADMIUM PLATED STEEL BOLTS, NUTS AND WASHERS (MEETING ASTM B 766, CLASS 8, TYPE 2)



NOTE: ALL STITCH BOLTS SHALL BE FIRST PLACED IN U-CHANNELS ACCORDING TO SPECIFICATIONS AFTER WHICH THEY SHALL BE TORQUED TO 3.4 N.m.

STITCH BOLT INSTALLATION ILLUSTRATION

- ⚠ REVISION OF NOTES
- ⚠ REVISION OF NOTES
- ⚠ WIND PRESSURE REDUCTION
- ⚠ EMBEDMENT
- ⚠ POST SECTION
- ⚠ DEPTH, CONC., NOTES
- ⚠ REV. OF SEC. MOD.
- ⚠ DELETED G.R. FOR 6.0
- ⚠ 4.0BB AND 6.0BB BEHIND GR
- ⚠ REVISED CLEAR NOTE
- ⚠ ADDED BOLT SPECS
- ⚠ ADDED METRIC

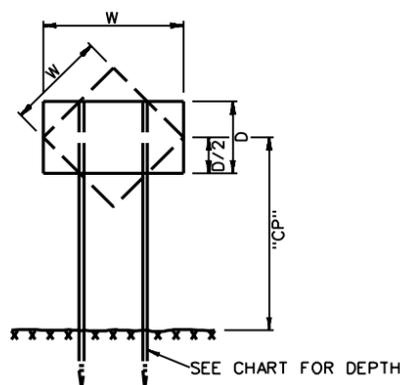
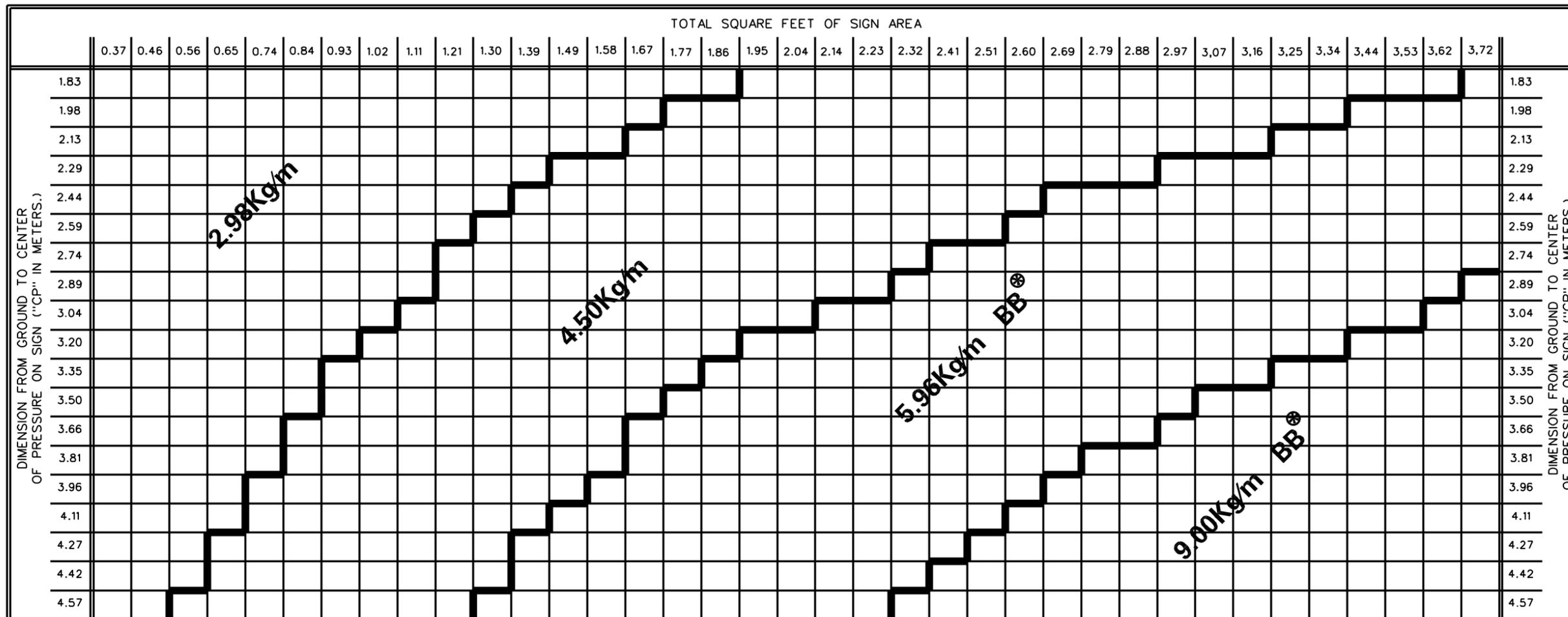
PREPARED: / /	REVISIONS
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	⚠ 05-21-69
	⚠ 11-25-70
	⚠ 04-01-71
	⚠ 11-19-73
	⚠ 11-09-76
	⚠ 10-24-78
	⚠ 11-30-84
	⚠ 01-05-93
	⚠ 09-13-93
	⚠ 02-06-94

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
ROADSIDE SIGN SUPPORTS
U-CHANNEL

STANDARD SHEET TE1-7A

PUBLIC ROADS DIV.	STATE DST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

SIGN POST SECTION REQUIRED (TWO SUPPORTS)



SEE TP3-1 FOR TYPICAL INSTALLATIONS

NOTES:

SEE SHEET TE1-7A FOR U-CHANNEL SECTIONS.
ALL SUPPORTS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A-123.

DEPTHS DRIVEN ARE BASED ON AVERAGE SOIL CONDITIONS. DEPENDING UPON ACTUAL SOIL BEARING IN THE FIELD, THE ENGINEER MAY REQUIRE THAT THE DEPTH DRIVEN BE INCREASED TO 1.5m. WHEN THE POST(S) ARE BEHIND GUARDRAIL, THE DEPTH DRIVEN MAY BE INCREASED UP TO 1.5m.

⊗ CAN BE USED IF THE SUPPORTS ARE LOCATED OUTSIDE OF THE CLEAR ZONE AS DEFINED IN TABLES 3.1 AND 3.2 OF THE "ROADSIDE DESIGN GUIDE". IF USED INSIDE OF THE CLEAR ZONE, THE SUPPORTS MUST BE EITHER BEHIND GUARDRAIL, CURB, OR THE OPERATING SPEED MUST BE LESS THAN 55 Km/h.

POST SECTION	DEPTH DRIVEN
2.98Kg/m	0.9m
4.50Kg/m	1.1m
5.96Kg/m BB	1.1m
9.00Kg/m BB	1.1m

- △ REVISION OF NOTES
- △ WIND PRESSURE REDUCTIONS
- △ GENERAL NOTES
- △ EMBEDMENT
- △ POST SECTION
- △ DEPTH, CONC., NOTES
- △ REV. OF SEC. MOD.
- △ CHANGED 4.0* ROMTS. & NOTE
- △ REVISED CLEAR. NOTE
- △ ADDED METRIC

**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
ROADSIDE SIGN SUPPORT
U-CHANNEL**

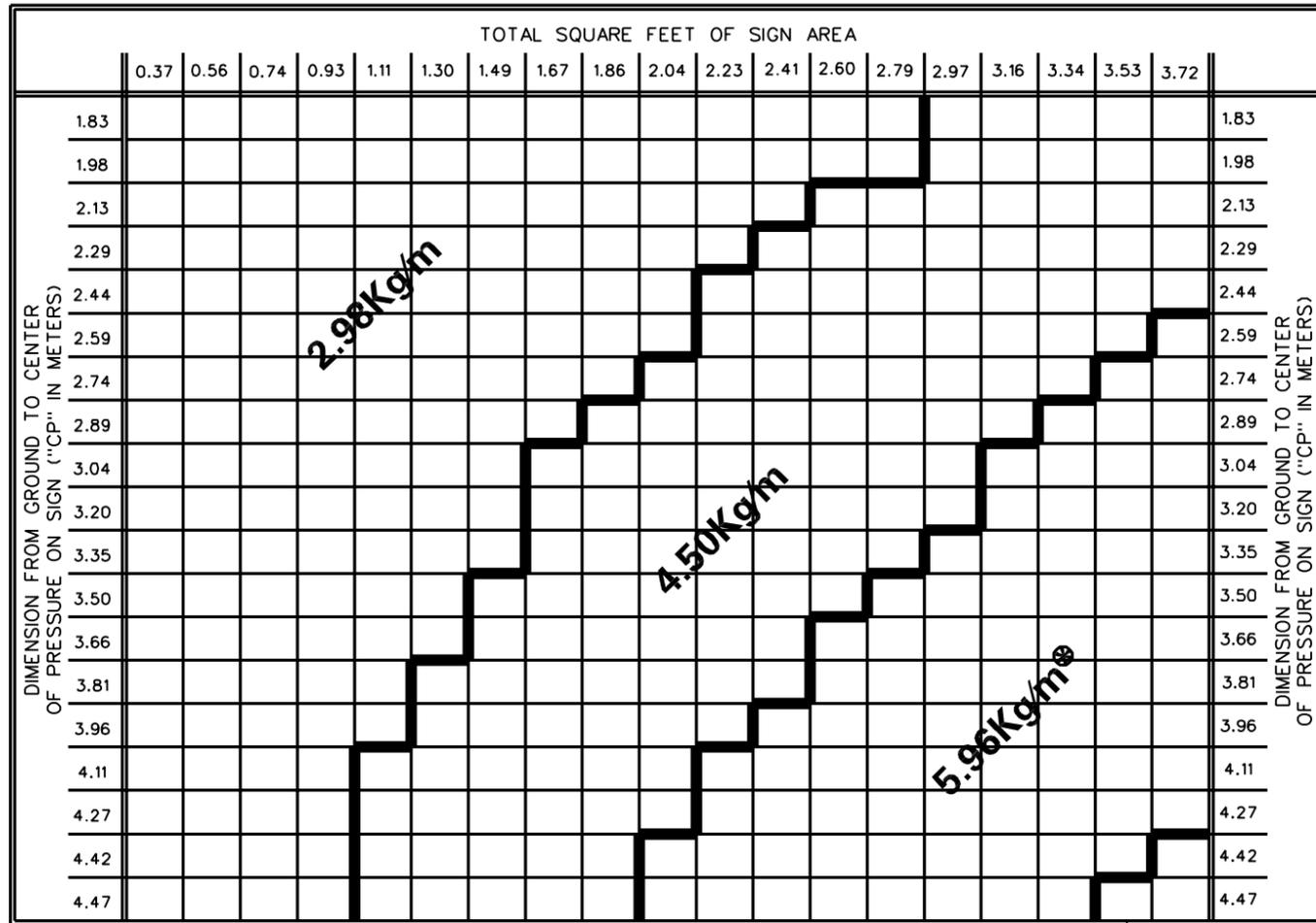
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REVISIONS
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△ 11-19-73
△ 11-09-76
△ 10-24-78
△ 11-30-84
△ 09-13-93
△ 06-02-94

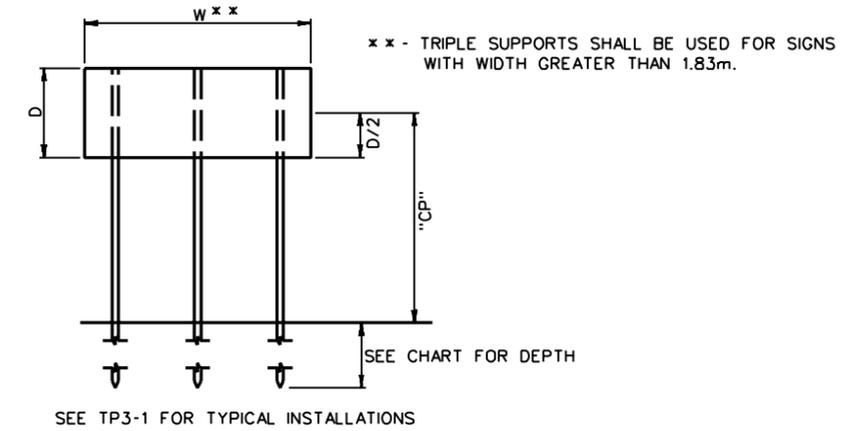
STANDARD SHEET TE1-7B

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

SIGN POST SECTION REQUIRED (THREE SUPPORTS)



POST SECTION	DEPTH DRIVEN
2.98Kg/m	0.9m
4.50Kg/m	1.1m
5.96Kg/m BB	1.1m
9.00Kg/m BB	1.1m



NOTES:

SEE SHEET TE1-7A FOR U-CHANNEL SECTIONS.
ALL SUPPORTS SHALL BE GALVANIZED IN ACCORDANCE WITH A.S.T.M. A-123.

DEPTHS DRIVEN ARE BASED ON AVERAGE SOIL CONDITIONS. DEPENDING UPON ACTUAL SOIL BEARING IN THE FIELD, THE ENGINEER MAY REQUIRE THAT THE DEPTH DRIVEN BE INCREASED TO 1.5m. WHEN THE POST(S) ARE BEHIND GUARDRAIL, THE DEPTH DRIVEN MAY BE INCREASED UP TO 1.5m.

⊗ CAN BE USED IF THE SUPPORTS ARE LOCATED OUTSIDE OF THE CLEAR ZONE AS DEFINED IN TABLES 3.1 AND 3.2 OF THE "ROADSIDE DESIGN GUIDE". IF USED INSIDE OF THE CLEAR ZONE, THE SUPPORTS MUST BE EITHER BEHIND GUARDRAIL, BARRIER CURB, OR THE ROADWAY OPERATING SPEED MUST BE LESS THAN 55 Km/h.

- △ REVISION OF NOTES
- △ WIND PRESSURE REDUCTION
- △ GENERAL NOTE
- △ EMBEDMENT
- △ POST SECTION
- △ DEPTH, CONC., NOTES
- △ REV. OF SEC. MOD.
- △ CHANGED 3.0° ROWTS. & NOTE
- △ REVISED CLEAR. NOTE
- △ ADDED METRIC

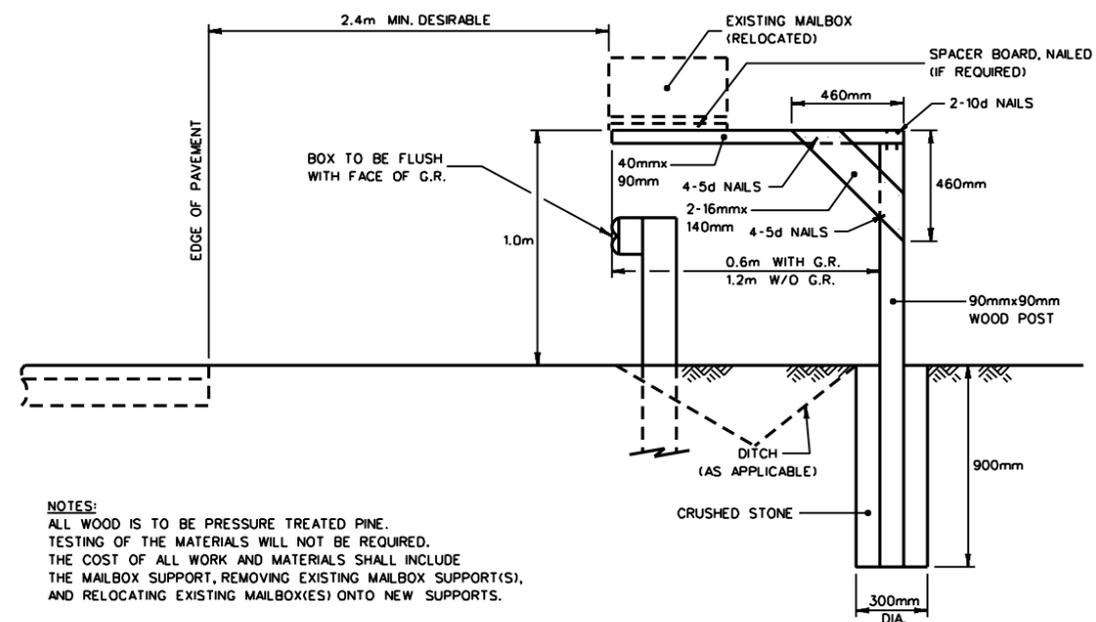
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
ROADSIDE SIGN SUPPORTS
U-CHANNEL

PREPARED: / /

REVISIONS
△ 05-21-69
△ 11-25-70
△ 01-04-71
△ 04-01-71
△ 11-19-73
△ 11-09-76
△ 10-24-78
△ 11-30-84
△ 09-13-93
△ 06-02-94

STANDARD SHEET TE1-7C

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



NOTES:
 ALL WOOD IS TO BE PRESSURE TREATED PINE.
 TESTING OF THE MATERIALS WILL NOT BE REQUIRED.
 THE COST OF ALL WORK AND MATERIALS SHALL INCLUDE
 THE MAILBOX SUPPORT, REMOVING EXISTING MAILBOX SUPPORT(S),
 AND RELOCATING EXISTING MAILBOX(ES) ONTO NEW SUPPORTS.

△ ADDED METRIC

**WEST VIRGINIA DIVISION OF HIGHWAYS
 STANDARD DETAIL
 CANTILEVER MAILBOX SUPPORT**

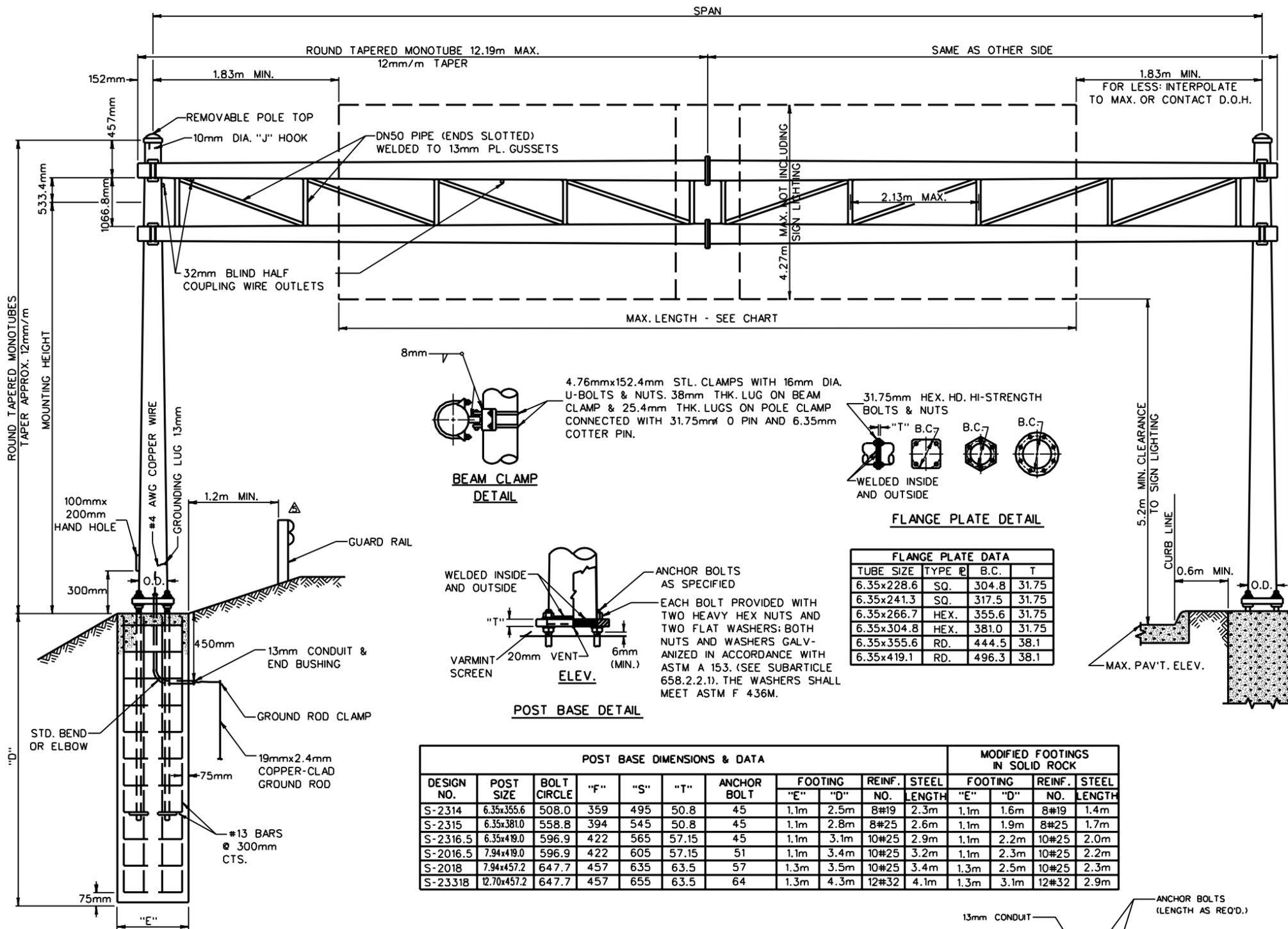
PREPARED: / /

REVISIONS

△ 06-02-94

STANDARD SHEET TE1-9

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



ALLOWABLE SIGN SIZES CHART FOR VARIOUS BEAM SIZE - SPAN COMBINATIONS

SPAN (m)	CHORD SIZE WALL THICKNESS & DIAMETER @	MAX. SIGN LENGTH "L" (m) & CORRESPONDING END POST SIZE HT. SHOWN BELOW X SIGN HT. "H" (m) (UNLIGHTED)				
		1.83m	2.44m	3.05m	3.66m	4.27m
12.19m	6.35 x 228.6	8.53m	8.53m	8.53m6.35mmx419.1mm	8.53m6.35mmx419.1mm	8.53m6.35mmx419.1mm
13.72m	6.35 x 228.6	10.06m	10.06m	10.06m6.35mmx419.1mm	8.84m6.35mmx419.1mm	6.40m6.35mmx381.0mm
	6.35 x 241.3	10.06m	10.06m	10.06m6.35mmx419.1mm	10.06m6.35mmx419.1mm	8.84m7.94mmx419.1mm
15.24m	6.35 x 266.7	10.06m	10.06m	10.06m6.35mmx419.1mm	10.06m7.94mmx419.1mm	10.06m7.94mmx419.1mm
	6.35 x 228.6	11.58m	11.58m	11.58m6.35mmx355.6mm	7.92m6.35mmx355.6mm	6.71m6.35mmx355.6mm
	6.35 x 241.3	11.58m	11.58m	11.58m6.35mmx355.6mm	10.36m6.35mmx381.0mm	7.92m6.35mmx381.0mm
16.76m	6.35 x 266.7	11.58m	11.58m	11.58m6.35mmx355.6mm	11.58m6.35mmx381.0mm	9.14m7.94mmx419.1mm
	6.35 x 304.8	11.58m	11.58m	11.58m6.35mmx355.6mm	11.58m6.35mmx381.0mm	11.58m7.94mmx419.1mm
	6.35 x 228.6	13.11m	13.11m	13.11m6.35mmx355.6mm	8.23m6.35mmx355.6mm	5.79m6.35mmx355.6mm
	6.35 x 241.3	13.11m	13.11m	13.11m6.35mmx355.6mm	13.11m6.35mmx419.1mm	5.79m6.35mmx355.6mm
18.29m	6.35 x 266.7	13.11m	13.11m	13.11m6.35mmx355.6mm	13.11m6.35mmx419.1mm	13.11m7.94mmx419.1mm
	6.35 x 304.8	13.11m	13.11m	13.11m6.35mmx355.6mm	13.11m6.35mmx419.1mm	13.11m7.94mmx419.1mm
	6.35 x 355.6	13.11m	13.11m	13.11m6.35mmx355.6mm	13.11m6.35mmx419.1mm	13.11m7.94mmx419.1mm
19.81m	6.35 x 266.7	14.63m	14.63m	14.63m6.35mmx381.0mm	8.53m6.35mmx381.0mm	7.32m6.35mmx381.0mm
	6.35 x 304.8	14.63m	14.63m	14.63m6.35mmx381.0mm	14.63m7.94mmx419.1mm	12.19m7.94mmx419.1mm
	6.35 x 355.6	14.63m	14.63m	14.63m6.35mmx381.0mm	14.63m7.94mmx419.1mm	14.63m12.70mmx457.2mm
21.34m	6.35 x 304.8	16.15m	16.15m	16.15m6.35mmx419.1mm	12.50m6.35mmx419.1mm	8.84m6.35mmx419.1mm
	6.35 x 355.6	16.15m	16.15m	16.15m6.35mmx419.1mm	16.15m6.35mmx419.1mm	16.15m12.70mmx457.2mm
	6.35 x 419.1	16.15m	16.15m	16.15m6.35mmx419.1mm	16.15m6.35mmx419.1mm	16.15m12.70mmx457.2mm
22.86m	6.35 x 304.8	17.68m	17.68m	17.68m6.35mmx419.1mm	14.02m6.35mmx419.1mm	7.92m6.35mmx419.1mm
	6.35 x 355.6	17.68m	17.68m	17.68m6.35mmx419.1mm	17.68m7.94mmx457.2mm	11.58m7.94mmx457.2mm
24.08m	6.35 x 419.1	19.20m	19.20m	19.20m7.94mmx419.1mm	15.54m7.94mmx419.1mm	11.89m7.94mmx419.1mm
	6.35 x 355.6	20.42m	20.42m	20.42m7.94mmx419.1mm	17.98m7.94mmx419.1mm	13.11m7.94mmx419.1mm

* INTERPOLATE: BETWEEN CHARTED VALUES FOR GAP OR UNSYMMETRICAL LOADING FOR MOUNTING HEIGHTS ABOVE 7.62m - CONTACT D.O.H.

NOTES:
SIGN BRACKETS AND/OR SIGN LIGHTING FOR DETAILS SEE TE6-3D.

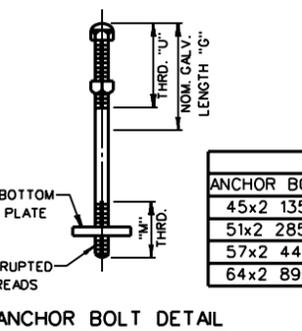
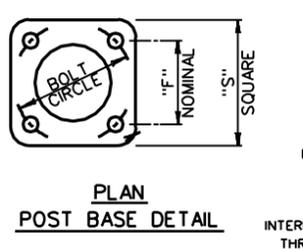
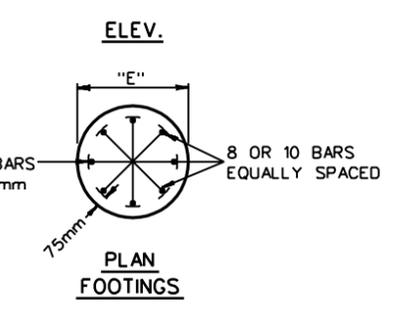
HI-STRENGTH BOLTS
HIGH STRENGTH BOLTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 709.24 OF THE SPECIFICATIONS.

TIGHTEN ALL HIGH STRENGTH BOLTS BY TURN OF NUT METHOD IN ACCORDANCE WITH SECTION 615 OF THE SPECIFICATIONS.

STEEL CLAMPS
SHALL BE ASTM-A 606 TYPE

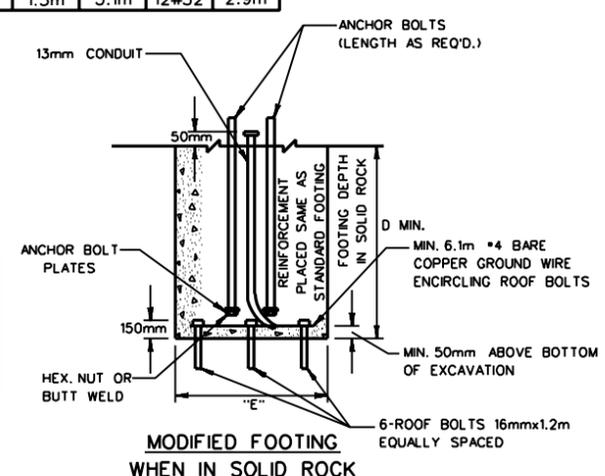
SIGNS
ALL SIGNS CENTERED VERTICALLY EXCEPT WITH LIGHTING FIXTURES THE CENTER OF THE SIGN IS 75mm ABOVE THE CENTER OF THE TRUSS.

- △ GUARDRAIL SPACING
- △ WHOLE SHEET GENERALLY
- △ CHANGED HI-STRENGTH BOLTS NOTE
- △ CHANGED H.S. BOLTS NOTE
- △ REVISED GUARDRAIL CLEARANCE
- △ ADDED METRIC



ANCHOR BOLT CHART

ANCHOR BOLT	"M"	"U"	"G"	BOTTOM PLATE
45x2	135	70	230	355
51x2	285	75	230	380
57x2	440	85	255	405
64x2	895	95	255	405



WEST VIRGINIA DIVISION OF HIGHWAYS

STANDARD DETAIL

OVERHEAD SIGN SUPPORT-STEEL

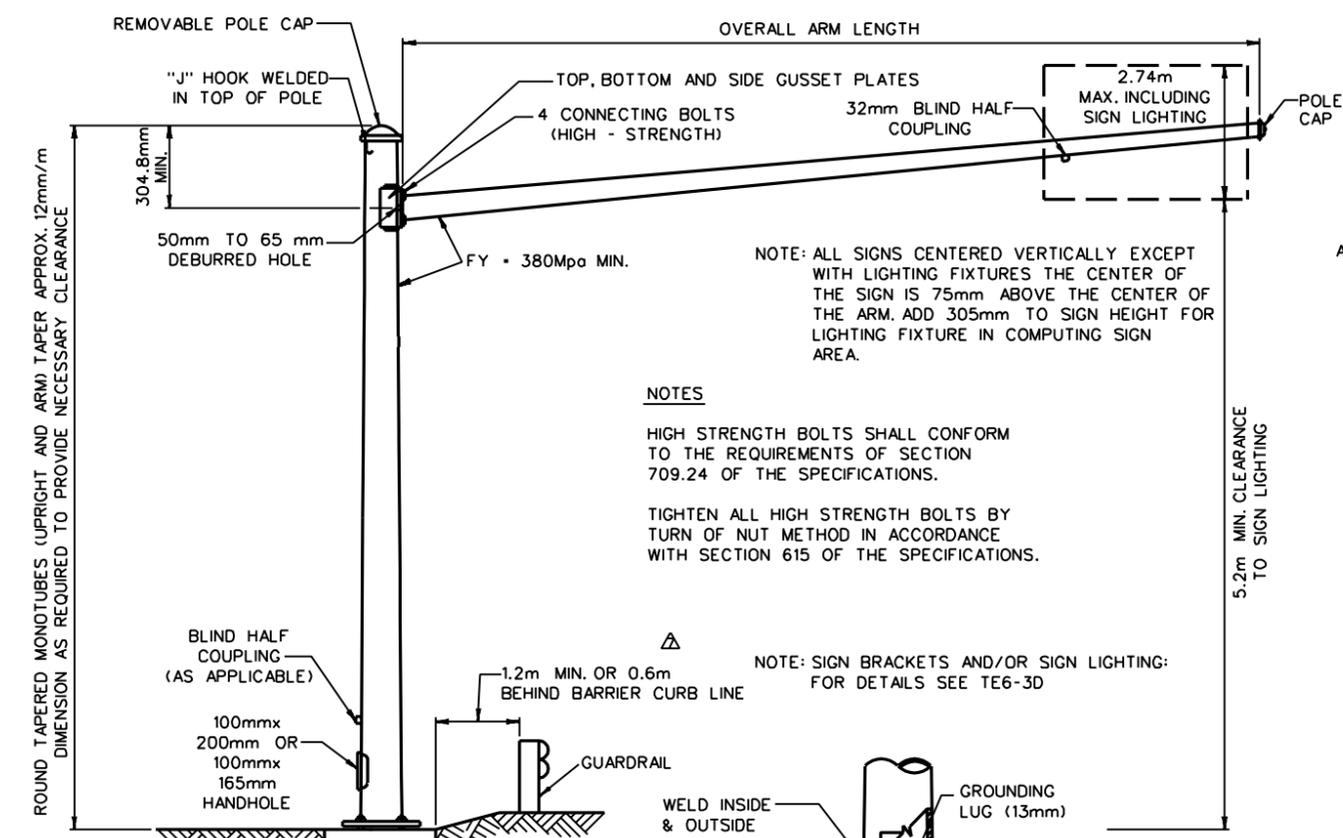
TWO TUBE SPAN

PREPARED: 02/03/75

REVISIONS

△	10-22-75
△	11-04-77
△	07-07-89
△	02-23-93
△	09-13-93
△	05-31-94

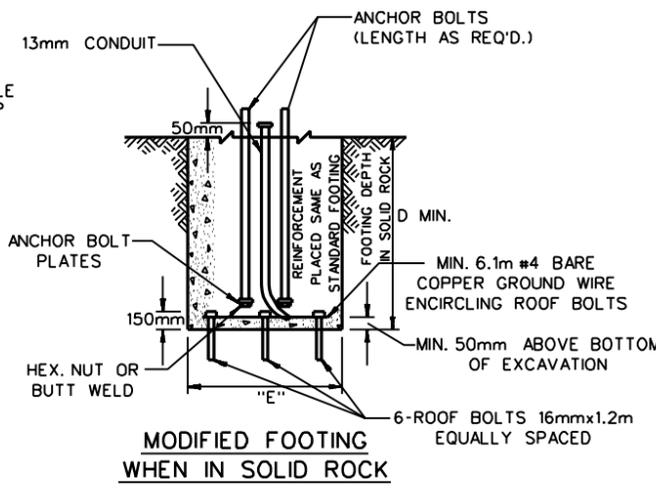
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



NOTES

HIGH STRENGTH BOLTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 709.24 OF THE SPECIFICATIONS.

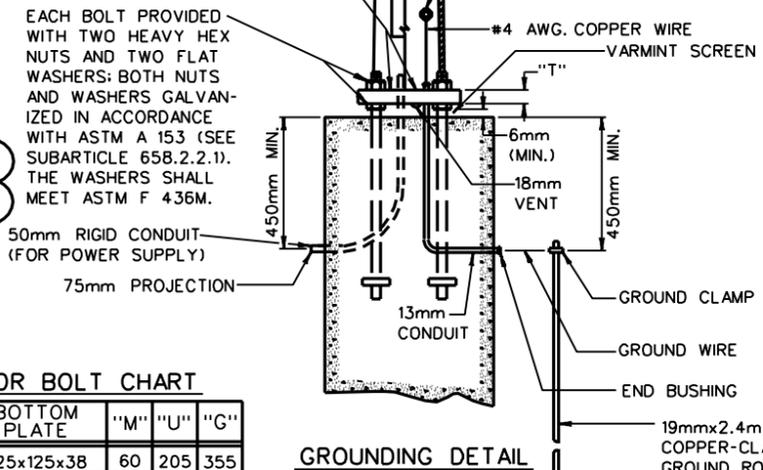
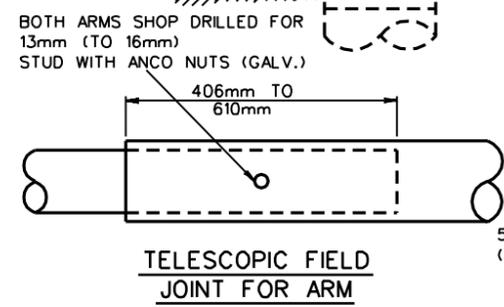
TIGHTEN ALL HIGH STRENGTH BOLTS BY TURN OF NUT METHOD IN ACCORDANCE WITH SECTION 615 OF THE SPECIFICATIONS.



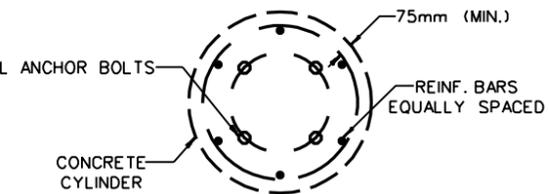
MODIFIED FOOTING WHEN IN SOLID ROCK

SUPPORT SELECTION CHART

DESIGN NUMBER	POLE DIAMETER	ARM DIAMETER AND SUPPORTING DATA	ARM LENGTH	TOTAL MOMENT (m-m ²)
C-179	4.55x228.6	4.55mmx152.4mmx81.3mm FOR 6.10m	4.27m THRU 6.10m	13.59
C-1710	4.55x254.0	4.55mmx177.8mmx85.3mm FOR 7.92m	6.40m THRU 7.92m	17.27
C-1711	4.55x279.4	4.55mmx203.2mmx89.4mm FOR 9.75m	8.23m THRU 9.75m	20.95
C-1712	4.55x304.8	4.55mmx228.6mmx86.4mm FOR 12.19m	10.06m THRU 12.19m	26.05
C-1312	6.35x304.8	6.35mmx228.6mmx86.4mm FOR 12.19m	10.06m THRU 12.19m	37.38
C-1713(2)	9.11x330.2	9.11mmx254.0mmx200.0mm FOR 4.65m	12.19m	47.29
		AND 6.35mmx218.7mmx8.00m FOR 12.19m		
C-1313	6.35x330.2	6.35mmx254.0mm FOR 4.80m	12.50m THRU 13.72m	39.36
		AND 4.55mmx214.4mmx9.45m FOR 13.72m		
C-1713(2)	9.11x381.0	9.11mmx304.8mmx236.5mm FOR 5.87m	12.50m THRU 13.72m	47.86
		AND 4.55mmx252.5mmx8.38m FOR 13.72m		
C-1313	6.35x330.2	6.35mmx254.0mm FOR 4.80m	14.02m TO 15.24m	36.53
		AND 4.55mmx214.4mmx10.97m FOR 15.24m		
C-1016	7.94x406.4	7.94mmx330.2mmx260.9mm FOR 5.94mm	14.02m TO 15.24m	54.37
		AND 4.55mmx278.1mmx7.91m FOR 15.24m		
C-1314	6.35x355.6	6.35mmx279.4mm FOR 5.79m	15.54m TO 16.76m	43.89
		AND 4.55mmx227.1mmx11.51m FOR 16.76m		



GROUNDING DETAIL



FOOTING DETAIL (SHOWING REINFORCEMENT)

POST BASE DETAIL

TYPE NUMBER	B.C.	T	ANCHOR BOLTS	FOOTING "E" D MIN.
C-179	317.5mm	32	31.75x1065	0.75m 1.7m
C-1710	342.9mm	32	31.75x1220	0.75m 1.9m
C-1711	381.0mm	32	38.10x1525	0.75m 2.0m
C-1712	406.4mm	32	38.10x1525	1.0m 2.0m
C-1311	381.0mm	38	44.45x2290	1.0m 2.2m
C-1312	406.4mm	38	44.45x2290	1.0m 2.3m
C-1313	457.2mm	38	44.45x2290	1.1m 2.3m
C-1314	508.0mm	45	44.45x2290	1.1m 2.5m
C-1713(2)	508.0mm	51	50.80x2290	1.1m 2.9m
C-1715(2)	558.8mm	64	57.15x2440	1.1m 3.2m
C-1016	596.9mm	64	57.15x2440	1.1m 3.2m

MODIFIED FOOTING IN SOLID ROCK

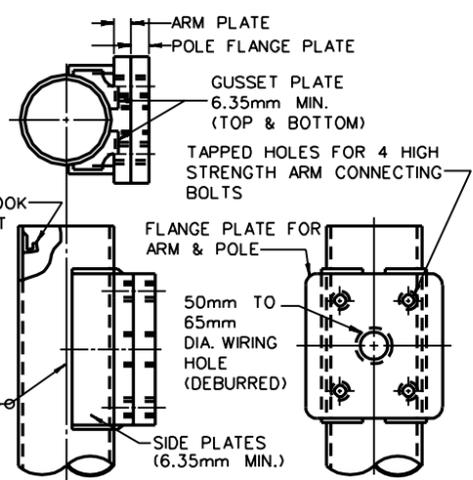
TYPE NUMBER	"E"	D MIN.	ANCHOR BOLTS
C-179	0.75m	1.3m	31.75x1065
C-1710	1.0m	1.3m	31.75x1065
C-1711	1.0m	1.3m	38.10x1065
C-1712	1.0m	1.4m	38.10x1220
C-1311	1.0m	1.6m	44.45x1370
C-1312	1.0m	1.6m	44.45x1370
C-1313	1.1m	1.7m	44.45x1525
C-1314	1.1m	1.9m	44.45x1680
C-1713(2)	1.1m	2.0m	50.80x1830
C-1715(2)	1.1m	2.2m	57.15x2135
C-1016	1.1m	2.2m	57.15x2135

- △ ENTIRE SHEET
- △ REINF. STEEL
- △ ANCHOR BOLTS & FOUNDATIONS
- △ DELETED LOCK WASHERS
- △ ANCHOR BOLT NOTE & HIGH-STRENGTH BOLTS
- △ COMPLETE CHART REVISION AND ATTENDANT DETAILS
- △ ADDED GR AND CURB CLEAR. CHANGED ANCHOR BOLTS TO DECIMAL
- △ ADDED METRIC

ANCHOR BOLT CHART

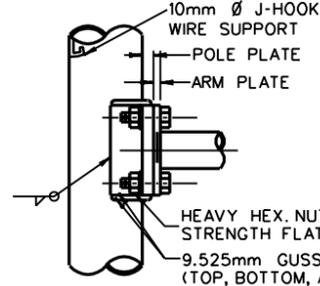
ANCHOR BOLTS	BOTTOM PLATE	"M"	"U"	"G"
31.75x1065	125x125x38	60	205	355
38.10x1370	150x150x45	65	230	355
44.45x2135	170x170x50	70	230	355
50.8x2285	200x200x60	75	230	380
57.15x2440	230x230x65	85	255	405

NOTE: ANCHOR BOLTS SHALL CONFORM TO SUBARTICLE 658.2.2.1 OF THE SPECIFICATIONS, EXCEPT THE MINIMUM YIELD STRENGTH SHALL BE 380Mpa.



ARM ATTACHMENT

ANCHOR BOLT DETAIL



ARM ATTACHMENT - ALT.

REINFORCEMENT SCHEDULE

TYPE NO.	STANDARD FOOTING		MODIFIED FOOTING	
	REINF.	LENGTH	REINF.	LENGTH
C-179	6 #19	1.6m	6 #19	1.1m
C-1710	6 #19	1.7m	6 #19	1.1m
C-1711	6 #19	1.9m	6 #19	1.1m
C-1712	8 #19	1.9m	8 #19	1.3m
C-1311	8 #19	2.0m	8 #19	1.4m
C-1312	8 #19	2.2m	8 #19	1.4m
C-1313	8 #19	2.2m	8 #19	1.6m
C-1314	8 #19	2.3m	8 #19	1.7m
C-1713(2)	8 #25	2.8m	8 #25	1.9m
C-1715(2)	10 #25	3.1m	10 #25	2.0m
C-1016	10 #25	3.1m	10 #25	2.0m

WEST VIRGINIA DIVISION OF HIGHWAYS

**STANDARD DETAIL
OVERHEAD SIGN SUPPORT - STEEL
SINGLE ARM CANTILEVER**

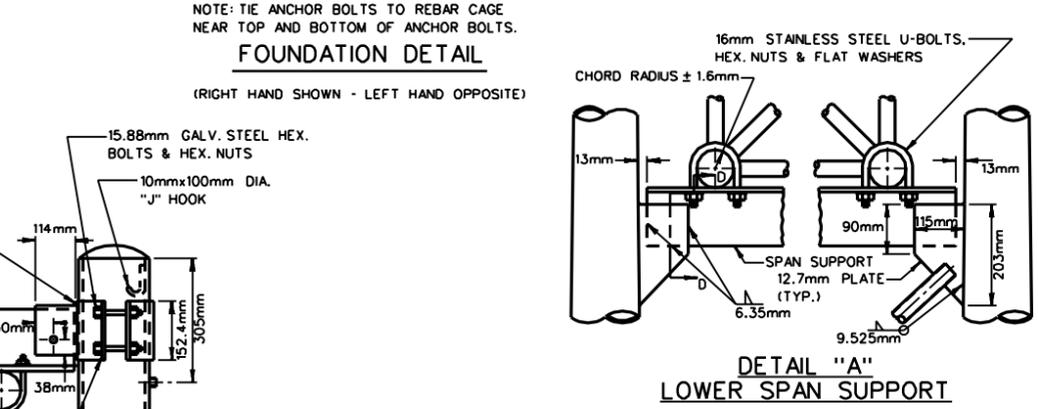
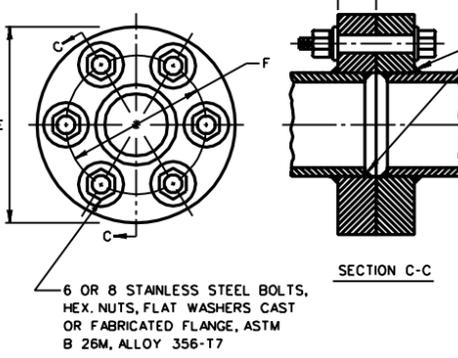
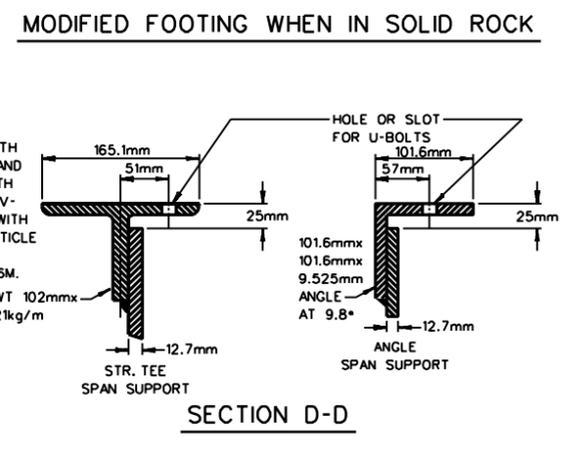
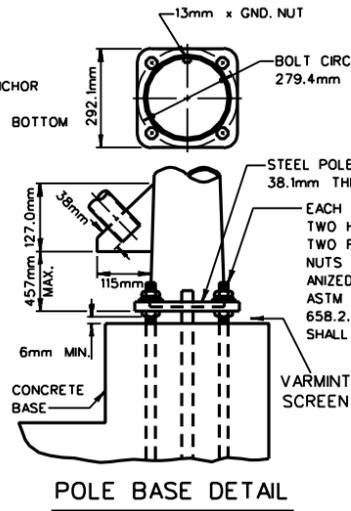
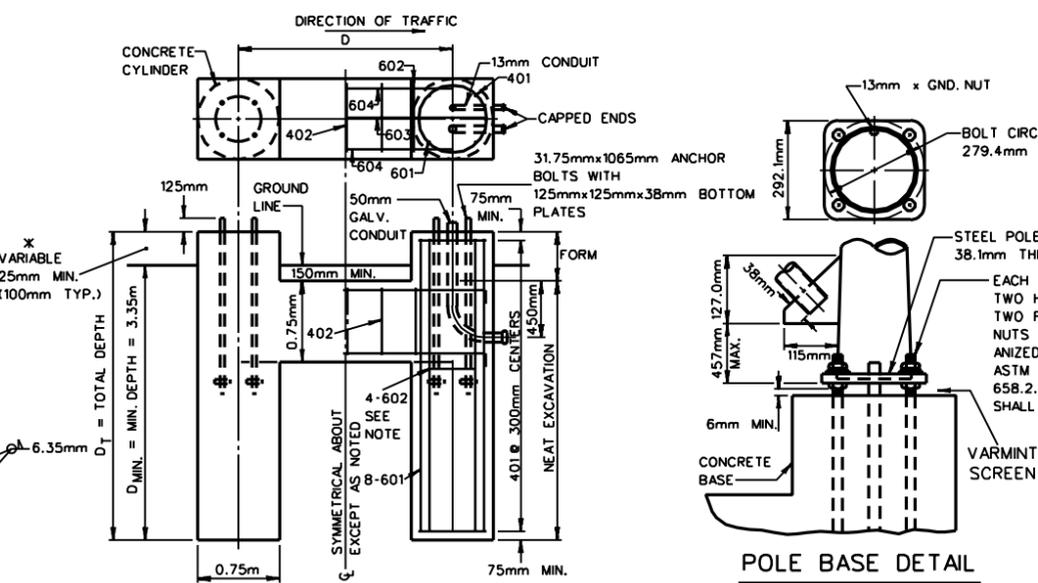
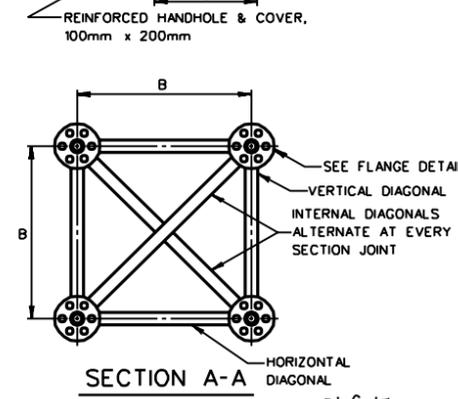
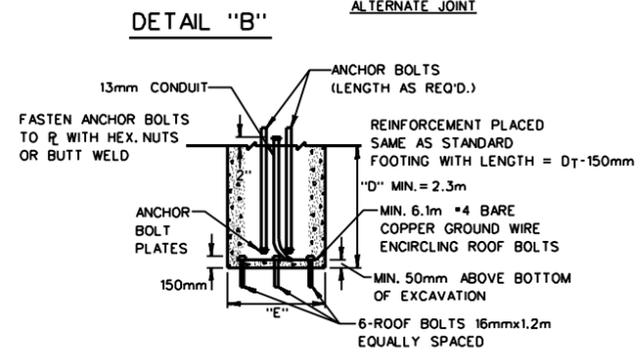
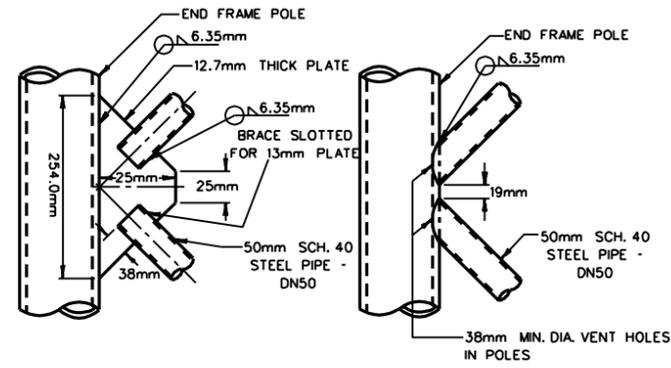
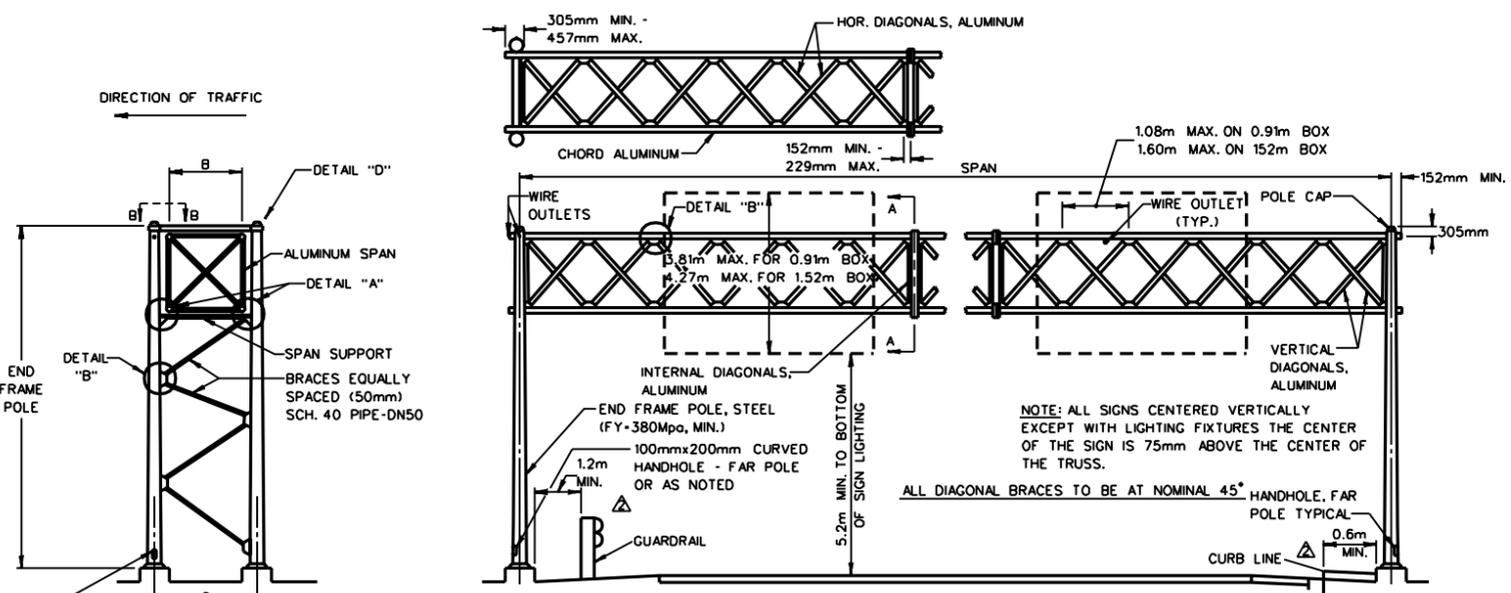
PREPARED: 02/03/75

REVISIONS

△	10-23-75
△	02-24-77
△	11-04-77
△	09-25-84
△	07-07-89
△	01-06-93
△	09-13-93
△	05-25-94

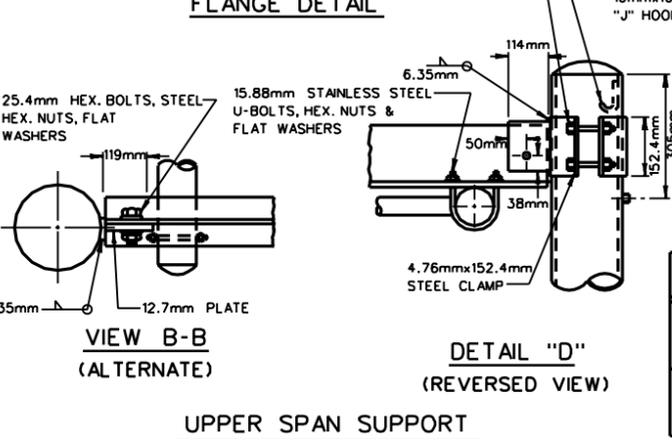
STANDARD SHEET TE4-4

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



REINFORCEMENT SCHEDULE (FOR EACH FOUNDATION)					
MARK	NO	LENGTH	TYPE	603	604
401	300mm-#13	2250mm	401	300mm	300mm
402	300mm-#13	2550mm	402	300mm	300mm
601	16-#19	$D_T - 150mm$	STR.	402	402
602	8-#13	600mm	STR.		
603	2-#13	$D_T - 1200mm$	603		
604	4-#19	$D_T - 600mm$	604		401

- DELETED LOCK WASHERS & ADDED GROUNDING NOTE
- ADDED GUARDRAIL AND CURB CLEAR.
- ADDED METRIC



DESIGN NO.	B	D	END SHAFT	SPlicing FLANGE			BOLT NO.	BOLT SIZE	CHORDS	DIAGONALS	ALLOWABLE SIGN AREA
				E	F	G					
1	0.9144m	1346.2mm	6.35mmx203.2mmx7.92m NOM.	230	190.5	35	8	16mmx102mm	114.30mmx6.02mm	48.26mmx5.08mm	UP TO 16.76m SPAN, AREA = 55.74m ² AT 24.38m SPAN, AREA = 32.52m ² PROPORTION ACCORDINGLY, IN BETWEEN
2	1.5240m	2006.6mm	6.35mmx203.2mmx8.38m NOM.	255	215.9	38	6	19mmx114mm	141.29mmx6.55mm	60.33mmx5.54mm	UP TO 22.86m SPAN, AREA = 60.39m ² AT 36.58m SPAN, AREA = 51.10m ² PROPORTION ACCORDINGLY, IN BETWEEN

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
OVERHEAD SIGN SUPPORT, STEEL-ALUMINUM COMBINATION (TRUSS)

PREPARED: 11/03/76
REVISIONS

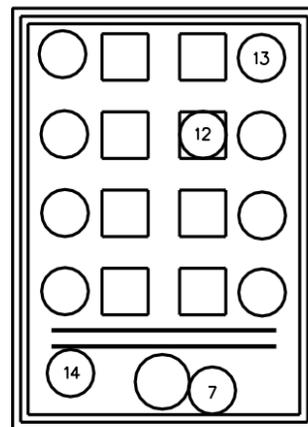
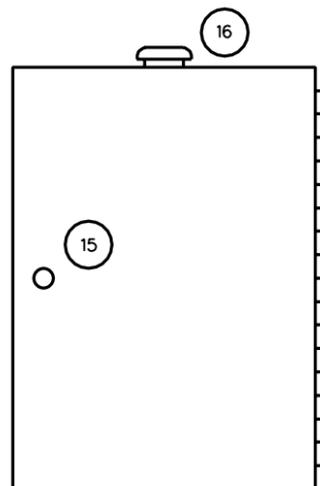
09-25-84
09-13-93
05-20-94

STANDARD SHEET TE5-1

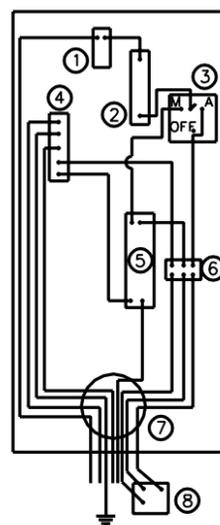
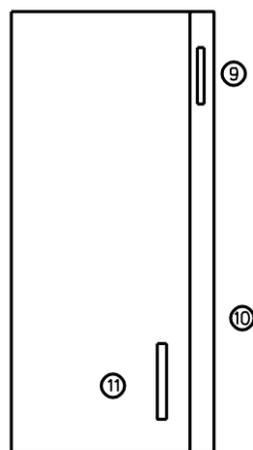
SIGN LIGHTING ENCLOSURE WIRING DIAGRAM FOR USE WITH SEPARATE LIGHTING POWER SOURCE

(SEE TEL-06 FOR DETAILS WHEN SIGN LIGHTING IS INCLUDED WITH ROADWAY LIGHTING CIRCUITS.)

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS



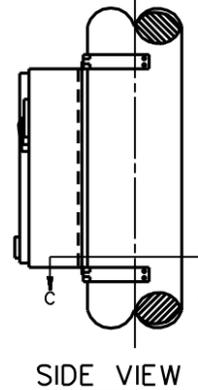
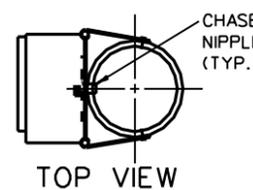
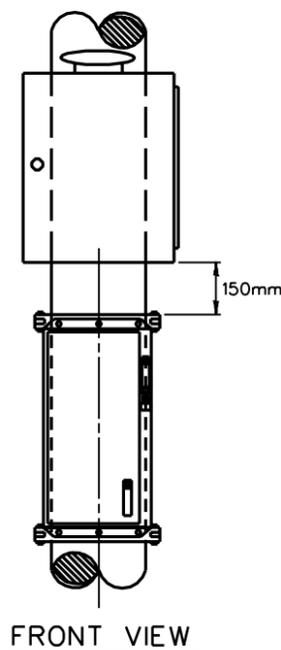
REMOTE BALLAST ENCLOSURE



120 OR 240 VOLT DISTRIBUTION ENCLOSURE
WIRING DIAGRAM
(120 VOLT SYSTEM SHOWN)

LEGEND

- 1 BARRIER TYPE TERMINAL BLOCK
- 2 MAIN CIRCUIT BREAKER
- 3 MANUAL-OFF-AUTOMATIC SELECTOR SWITCH
- 4 SOLID NEUTRAL GROUNDED
- 5 120 VOLT CONTACTOR
- 6 P.E. UNIT TERMINAL STRIP
- 7 CHASE NIPPLE X
- 8 120 VOLT P.E. UNIT (PHOTOCELL-TWISTLOCK TYPE, STANDARD NEMA WITH 70mm ID LOCKING BASE)
- 9 LOCKABLE SAFETY SWITCH
- 10 NEMA R S.S. ENCLOSURE
- 11 ENCLOSURE DOOR INTERLOCK
- 12 BALLAST
- 13 CAPACITOR
- 14 TERMINAL STRIPS
- 15 'CORBIN' TYPE LOCK SERIES #R357SGS
- 16 VENT



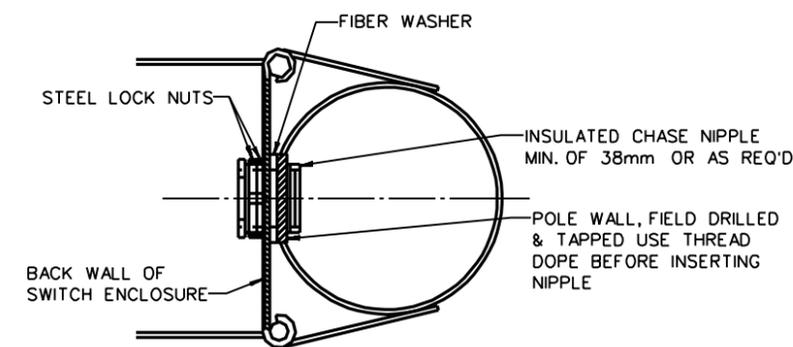
REMOTE BALLAST ENCLOSURE:

THIS SHALL BE NEMA 3R OF MINIMUM OUTSIDE DIMENSIONS OF 660mm x 430mm AND MUST MEET REQUIREMENTS OF POLE MOUNTED DETECTOR AND FLASHER UNIT CABINETS WITH EXCEPTION TO SIZE. SEE STANDARD SPECIFICATIONS SECTION 715.42.8. MOUNT APPROXIMATELY 150mm ABOVE DISTRIBUTION ENCLOSURE.

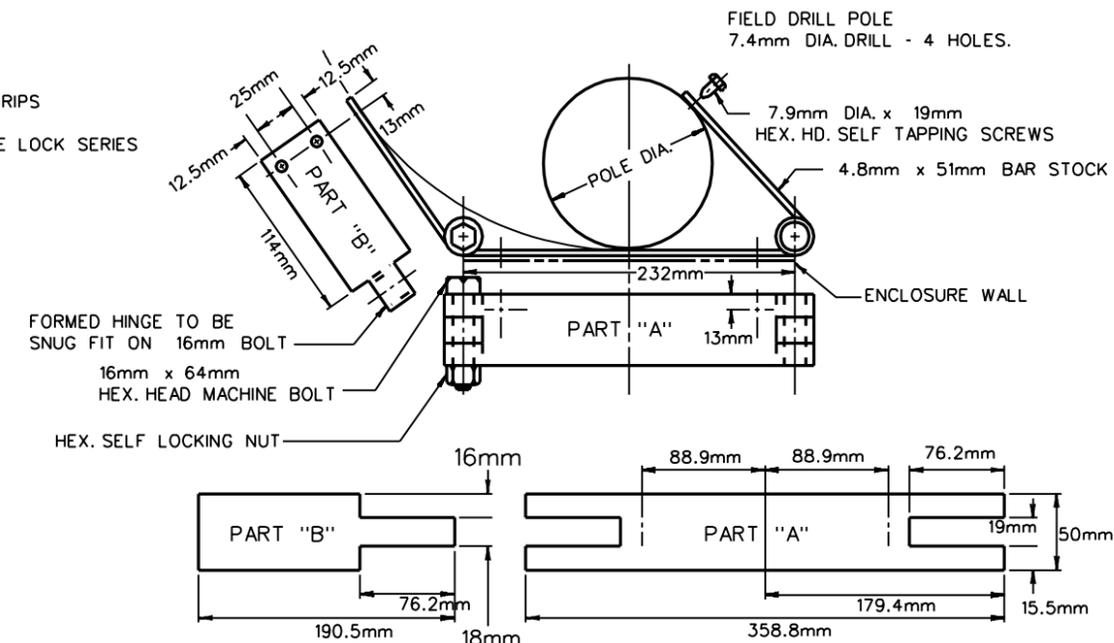
EACH SIGN LIGHTING FIXTURE MUST BE ON A SEPARATELY WIRED CIRCUIT FROM THE REMOTE BALLAST ASSEMBLY. A MINIMUM OF EIGHT (8) FUSED TERMINALS MUST BE PROVIDED ON THE REMOTE BALLAST BACK PANEL FOR FUSING THE LINE SIDE OF EACH BALLAST. NO FUSING IS TO BE INSTALLED IN THE SIGN LIGHTING FIXTURE BETWEEN THE FIXTURE AND THE BALLAST ASSEMBLY.

DISTRIBUTION ENCLOSURE:

THE ENCLOSURE SHALL BE NEMA #4 WATERTIGHT 1.9mm MIN. GAUGE STAINLESS STEEL AISI 302-303. A DISCONNECT HANDLE SHALL BE FLANGE MOUNTED AND CAPABLE OF BEING LOCKED IN EITHER POSITION. THE ENCLOSURE SHALL BE EQUIPPED WITH A DOOR LOCKING MECHANISM WITH A DEFEATER THAT NECESSITATES TWO HANDS TO OPERATE MECHANISM WITH THE SWITCH IN OFF POSITION. SPACE FOR AN INSULATED CHASE NIPPLE SHALL BE PROVIDED APPROXIMATELY 60mm ABOVE THE CENTER LINE OF THE LOWER MOUNTING SLOT THIS ENCLOSURE AND STRUCTURE SHALL BE SHOP DRILLED AND TAPPED FOR THE REQUIRED NIPPLE AS SHOWN ON THE DETAIL ON THIS SHEET. THIS ENCLOSURE SHALL BE FLANGE MOUNTED ON BRACKETS WHICH ARE ATTACHED TO POLE AS SHOWN ON THIS SHEET ON THE MOUNTING BRACKET DETAIL.



CHASE NIPPLE WIRE INLET DETAIL



ENCLOSURE MOUNTING BRACKET

- △ DELETED SIGNATURE BLOCK
- △ DELETED 2" SIZING FOR WIRE INLET
- △ ADDED MAIN CKT. BKR. AND M-O-A SWITCH
- △ ADDED NOTE - SEE TEL-06
- △ ADDED REMOTE BALLAST AND ENCLOSURE DETAILS AND NOTE
- △ ADDED METRIC

(X) WHEN USED ON WOOD POLE, APPROPRIATE CONDUIT HUBS SHALL BE INSTALLED ON BOTTOM AS NECESSARY TO FOLLOW CONDUIT ON POLE.

THE ENCLOSURE MOUNTING BRACKET MAY BE FABRICATED FROM EITHER GALVANIZED STEEL OR ALUMINUM. THE BRACKET SHALL BE FIELD MOUNTED WITH 7.94mm HEX HEAD SCREWS (SELF-TAPPING FOR ATTACHING TO STEEL OR ALUM.). STEEL NUTS, BOLTS, AND SCREWS SHALL BE CADMIUM PLATED. ALUMINUM NUTS, BOLTS, AND SCREWS SHALL HAVE AN ANODIC COATING AT LEAST 0.005mm IN THICKNESS AND SHALL BE CHROMATE SEALED.

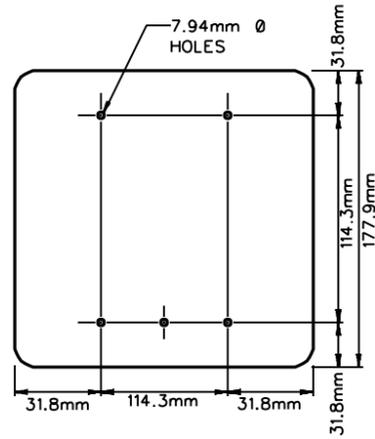
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
SIGN LIGHTING - ENCLOSURES
WITH REMOTE BALLAST

PREPARED: / /

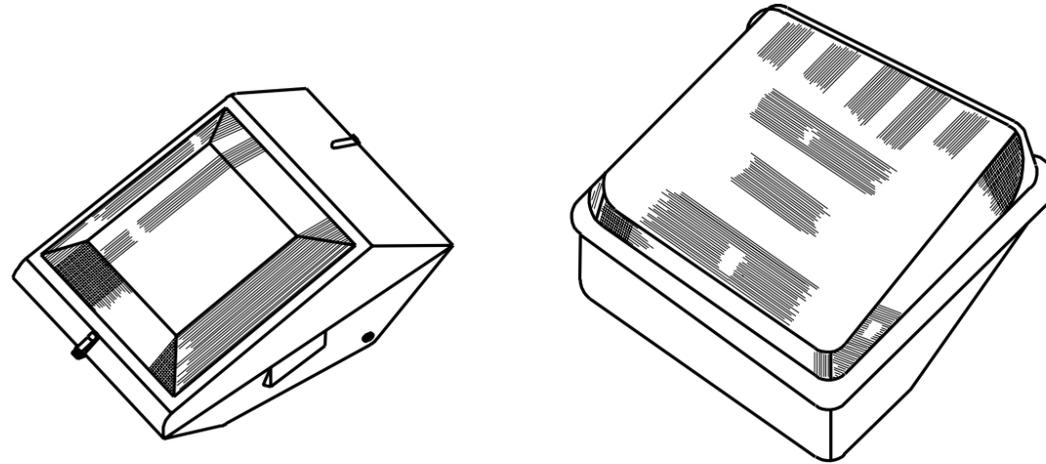
REVISIONS
△ 07-22-76
△ 02-15-77
△ 05-12-78
△ 06-30-89
△ 02-22-93
△ 05-18-94

STANDARD SHEET TE6-3B

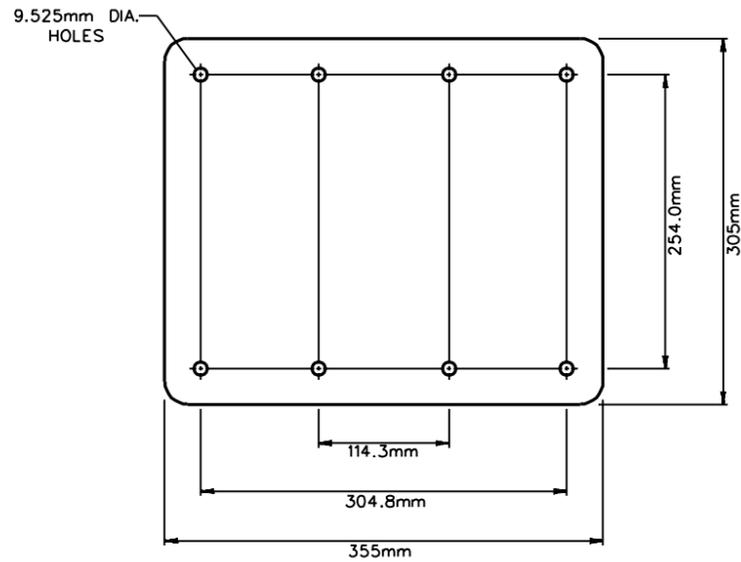
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



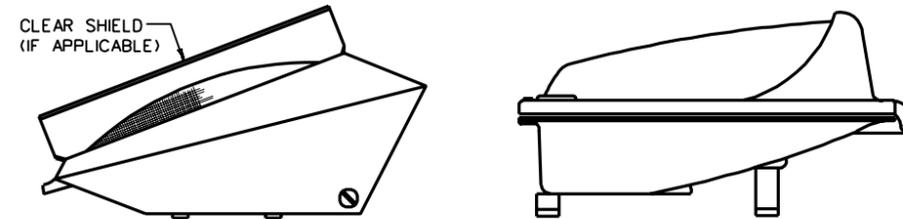
LUMINAIRE MOUNTING PLATE



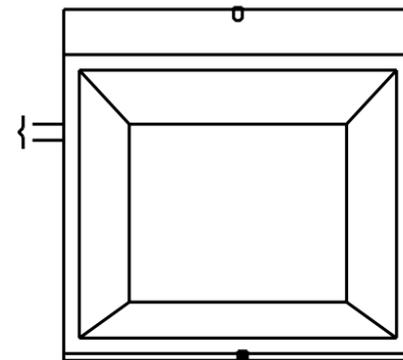
3/4 FRONT VIEW (TILTED FORWARD)



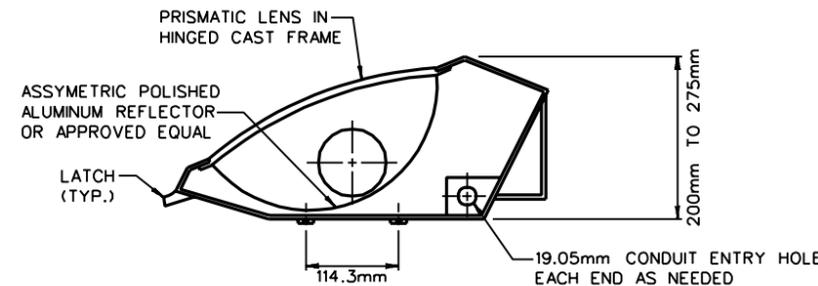
LUMINAIRE MOUNTING PLATE (ALT.)



END VIEW WITH IMPACT SHIELD (AS REQUIRED)



TOP VIEW



SECTIONAL END VIEW

GENERAL NOTES

SIGN ILLUMINATION

SIGN ILLUMINATION SHALL BE BY ATTACHED EXTERNAL MERCURY VAPOR FIXTURES AS SHOWN ON SIGN ILLUMINATION DETAIL SHEET TE6-3D.

GENERALLY, THE LUMINAIRE SHALL BE OF THE INTEGRAL BALLAST TYPE, COMPLETE WITH HOUSING, MOUNTING BRACKET REFLECTOR, LENSE REFRACTOR, FUSE HOLDER, FUSE, LAMP SOCKET, BALLAST AND LAMP.

LAMPS

LAMPS SHALL BE 100, 175 OR 250 WATT DELUXE WHITE MERCURY VAPOR (AS INDICATED ON THE PLANS) HEAVY GLASS TYPE WITH RATED LIFE OF 24,000 HOURS MINIMUM A.N.S.I. CODE H38T-100, H39KB-175, OR H37KB-250.

LAMP FIXTURE

LUMINAIRE HOUSING SHALL BE CAST ALUMINUM WITH CAPTIVE CLOSED CELL NEOPRENE GASKET. CLOSURE SHALL BE POSITIVE BY THE USE OF STAINLESS STEEL PRESSURE LATHES AND STAINLESS STEEL HINGES.

LENSE REFRACTOR SHALL BE MOLDED PRISMATIC THERMAL SHOCK RESISTANT BOROSILICATE GLASS.

LAMP SOCKET SHALL BE OF A HEAVY DUTY MOGUL TYPE AND BE PROVIDED WITH ADJUSTABLE SETTINGS OR POSITIONS FOR VARYING THE BEAM PATTERN.

FINAL FIELD AIMING (ADJUSTING AIMING ANGLE) OF FIXTURE SHALL BE DONE AT NIGHT ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

REMOTE BALLAST

BALLASTS FOR LUMINAIRES SHALL BE 250 WATT (UNLESS OTHERWISE INDICATED), HIGH POWER FACTOR CONSTANT WATTAGE, AUTO TRANSFORMER TYPE FOR USE WITH APPROPRIATE LINE VOLTAGE, 60 HERTZ, OUTDOOR ENCLOSED SYSTEM AND SHALL PROVIDE FOR LAMP OPERATION THROUGHOUT AN AMBIENT TEMPERATURE RANGE OF -29°C TO -66°C. BALLASTS SHALL BE MOUNTED REMOTE AS SHOWN ON STANDARD DETAILS.

- ▲ ADDED 100W AND 175W LAMPS
- ▲ SPELLING OF BALLASTS
- ▲ ADDED ALT LUM. AND PLATE, REVISED TO REMOTE BALLAST, UPDATED LUMINAIRE NOMENCLATURE
- ▲ ADDED METRIC

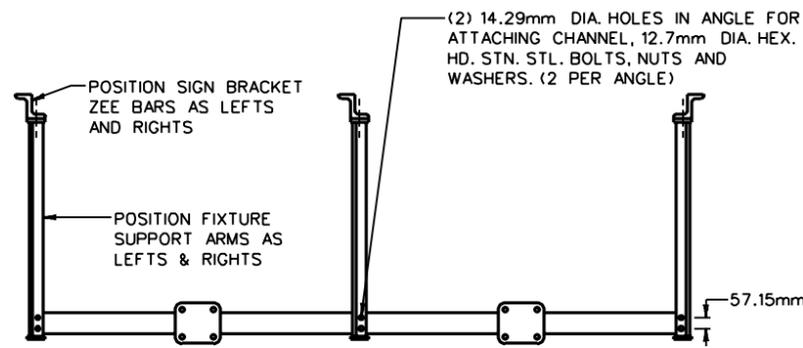
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
SIGN LIGHTING - FIXTURE
TYPE 3

PREPARED: 04/00/73

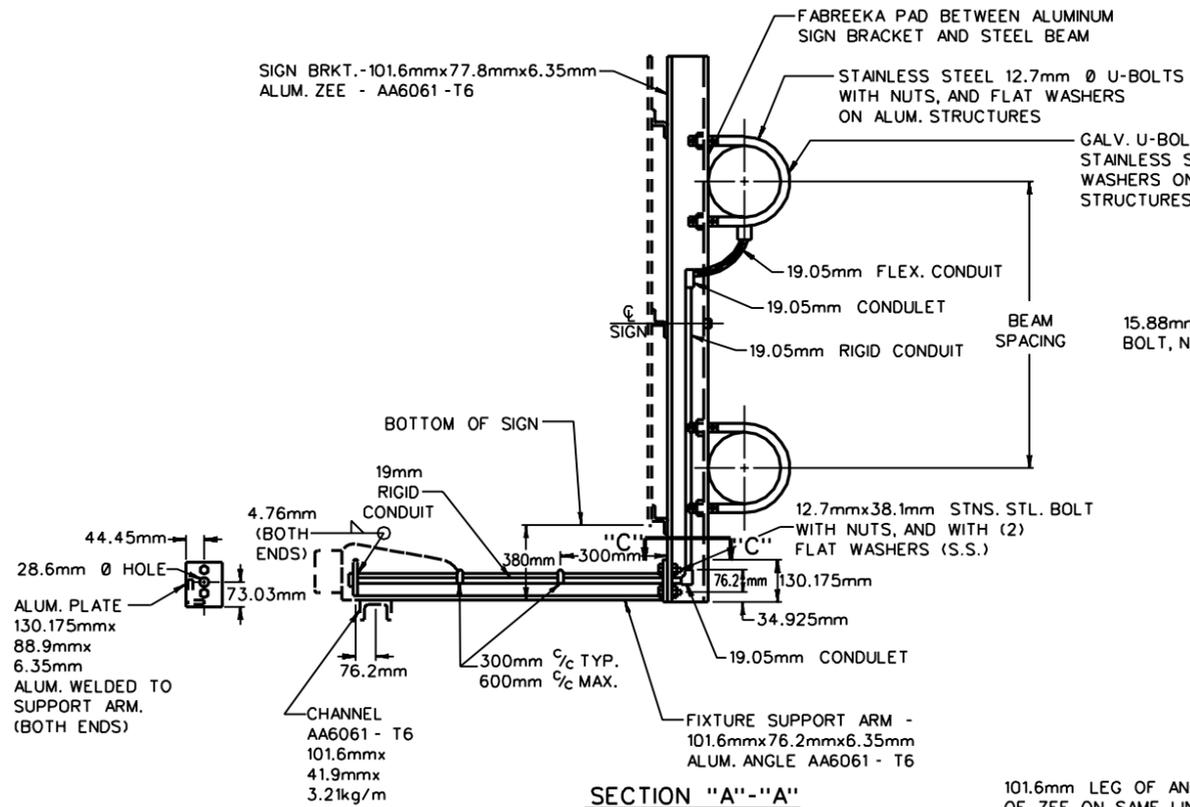
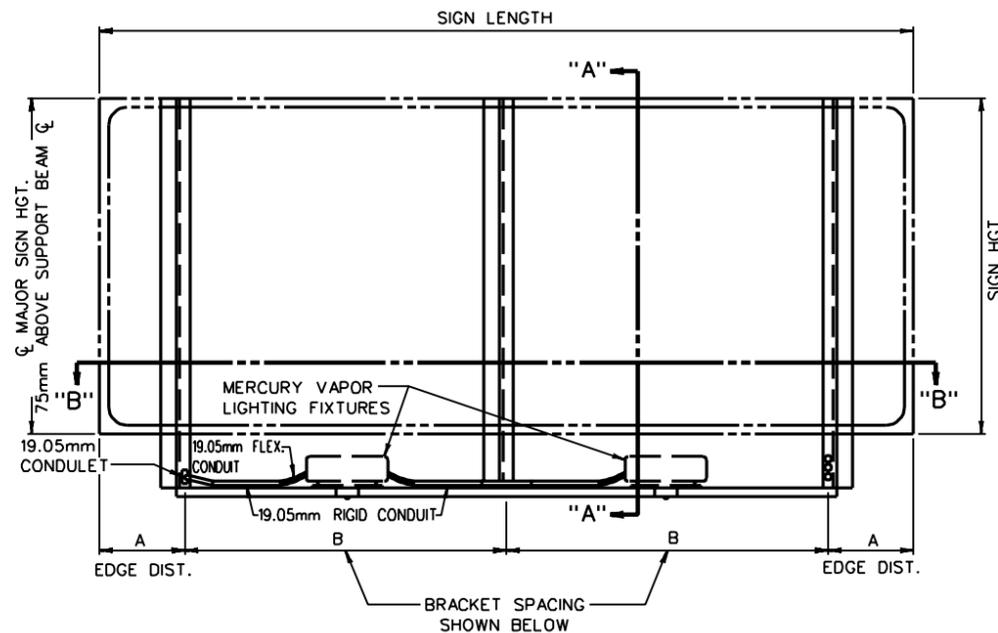
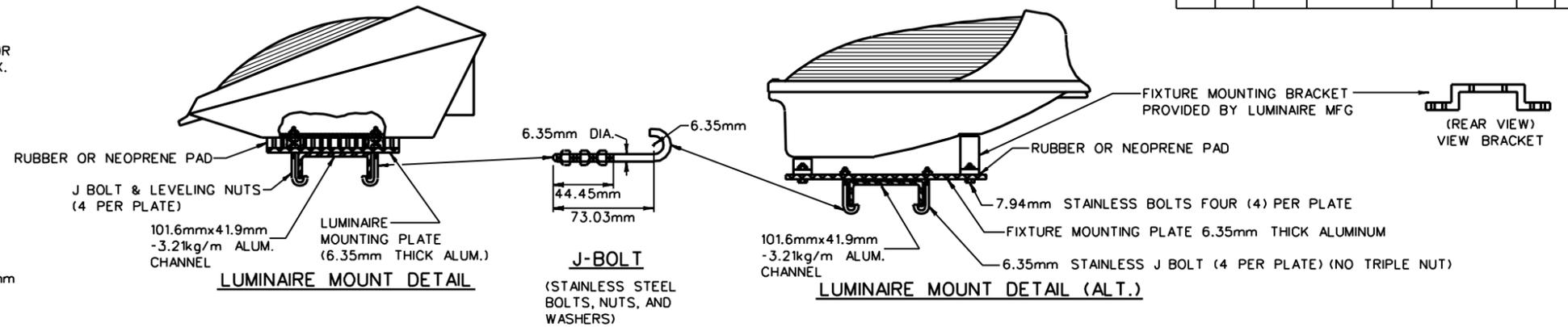
REVISIONS
01-00-74
01-00-75
▲ 07-22-76
▲ 02-15-77
▲ 02-22-93
▲ 05-19-94

STANDARD SHEET TE6-3C

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



SECTION "B"-"B"



METHOD OF ATTACHMENT ON SINGLE BEAM STRUCTURES

SECTION "C"-"C"

SIGN LENGTH	QUANTITY OF FIXTURES	SIGN BRACKET	BRACKET SPACING	
			A	B
1.20m	1	2	300mm	10600mm
1.35m	1	2	325mm	10700mm
1.50m	1	2	375mm	10750mm
1.65m	1	2	400mm	10850mm
1.80m	1	2	450mm	10900mm
1.95m	1	2	475mm	10100mm
2.10m	1	2	525mm	10150mm
2.25m	1	2	550mm	10150mm
2.40m	1	2	600mm	10200mm
2.55m	1	2	625mm	10300mm
2.70m	1	2	675mm	10350mm
2.85m	1	2	700mm	10450mm
3.00m	1	2	750mm	10500mm
3.15m	2	3	525mm	201050mm
3.30m	2	3	550mm	201100mm
3.45m	2	3	575mm	201150mm
3.60m	2	3	600mm	201200mm
3.75m	2	3	625mm	201250mm
3.90m	2	3	650mm	201300mm

SIGN LENGTH	QUANTITY OF FIXTURES	SIGN BRACKET	BRACKET SPACING	
			A	B
4.05m	2	3	675mm	201350mm
4.20m	2	3	700mm	201400mm
4.35m	2	3	725mm	201450mm
4.50m	2	3	750mm	201500mm
4.65m	2	3	750mm	201575mm
4.80m	2	3	750mm	201650mm
4.95m	2	3	750mm	201725mm
5.10m	2	3	750mm	201800mm
5.25m	2	3	750mm	201875mm
5.40m	2	3	750mm	201950mm
5.55m	2	3	750mm	202025mm
5.70m	2	4	600mm	301500mm
5.85m	2	4	600mm	301550mm
6.00m	2	4	600mm	301600mm
6.15m	3	4	225mm	301900mm
6.30m	3	4	300mm	301960mm
6.45m	3	4	375mm	301900mm
6.60m	3	4	450mm	301900mm
6.75m	3	4	525mm	301900mm

SIGN LENGTH	QUANTITY OF FIXTURES	SIGN BRACKET	BRACKET SPACING	
			A	B
6.90m	3	4	600mm	301900mm
7.05m	3	4	675mm	301900mm
7.20m	3	4	750mm	301900mm
7.35m	3	4	750mm	301950mm
7.50m	3	4	750mm	302000mm
7.65m	3	4	750mm	302050mm
7.80m	3	4	750mm	302100mm
7.95m	3	4	750mm	302150mm
8.10m	3	4	750mm	302200mm
8.25m	3	4	750mm	302250mm
8.40m	3	4	750mm	302300mm
8.55m	3	5	675mm	401800mm
8.70m	3	5	600mm	401875mm
8.85m	4	5	225mm	402100mm
9.00m	4	5	300mm	402100mm
9.15m	4	5	325mm	402125mm
9.30m	4	5	400mm	402125mm
9.45m	4	5	425mm	402150mm
9.60m	4	5	450mm	402175mm

TOTAL SIGN HEIGHT	FIXTURE SUPPORT ARM LENGTH	LAMP A.N.S.I. WATTS CODE	LAMP A.N.S.I. WATTS CODE	LAMP A.N.S.I. WATTS CODE
0.91m TO 1.52m	0.84m	H38HT-100	H39KB-175	H37KB-250
1.53m TO 1.98m	1.00m	100 (H38-4HT)	175 (H39-22KB)	250 (H37-5KB)
1.99m TO 3.05m	1.30m			
3.06m TO 4.27m	1.75m			

SIGN LENGTH	QUANTITY OF FIXTURES	SIGN BRACKET	BRACKET SPACING	
			A	B
9.75m	4	5	475mm	402200mm
9.90m	4	5	550mm	402200mm
10.05m	4	5	575mm	40225mm
10.20m	4	5	600mm	402250mm
10.35m	4	5	525mm	402275mm
10.50m	4	5	700mm	402275mm
10.65m	4	5	725mm	402300mm
10.80m	4	5	750mm	402325mm

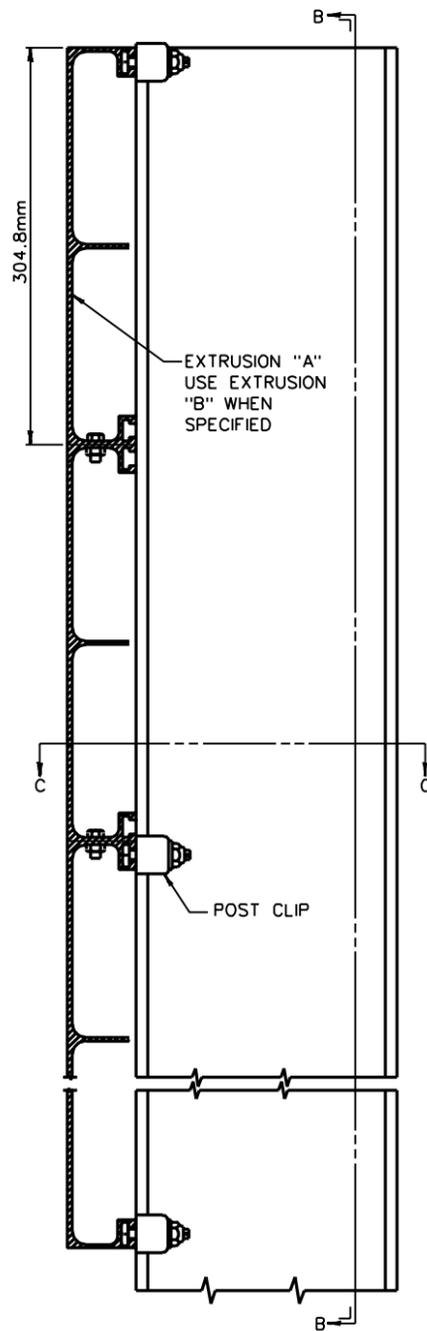
▲ ADDED 100W AND 175W LAMPS ▲ ADDED METRIC
 ▲ MOVED WIRING TO TOP
 ▲ ADDED ALT LUM. & PLATE, AND BRACKET, UPDATED LUM. NOMENCLATURE, ADDED LUMS TO 36'-0"

WEST VIRGINIA DIVISION OF HIGHWAYS STANDARD DETAIL SIGN LIGHTING - MOUNTING TYPE 3

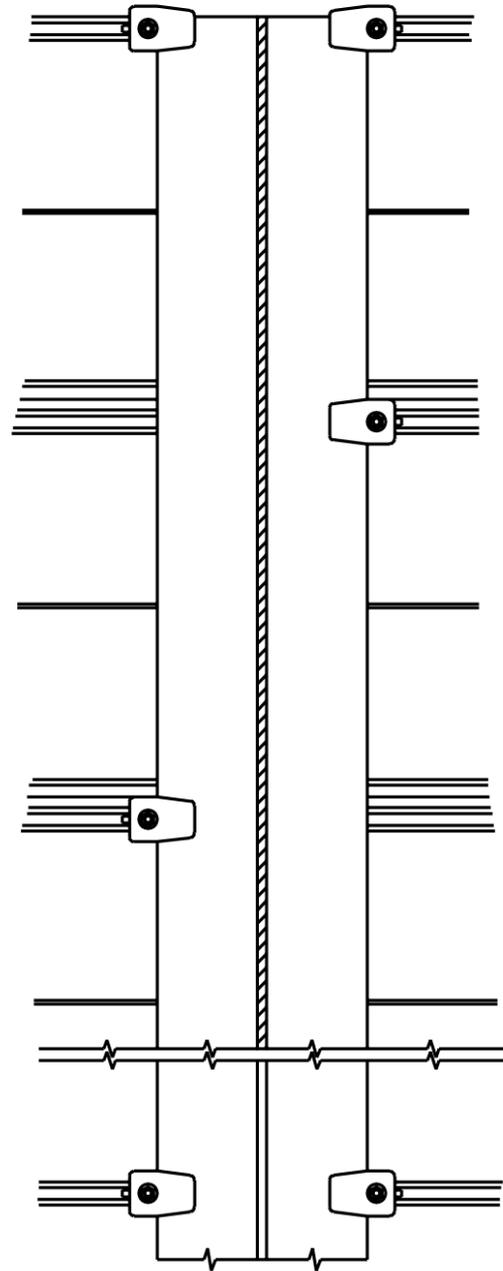
PREPARED: 02/00/75

REVISIONS
▲ 07-22-76
▲ 02-15-77
▲ 02-22-93
▲ 05-18-94

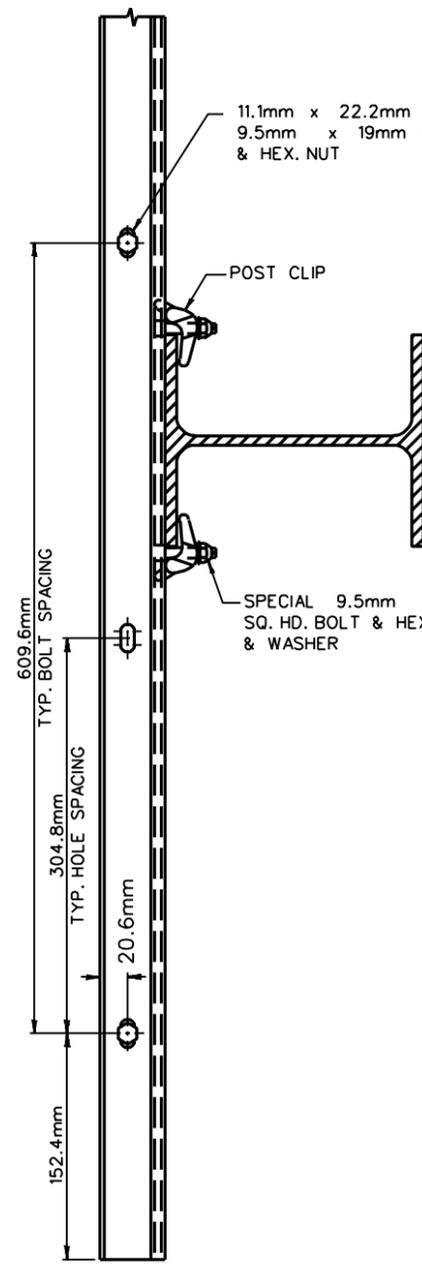
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS



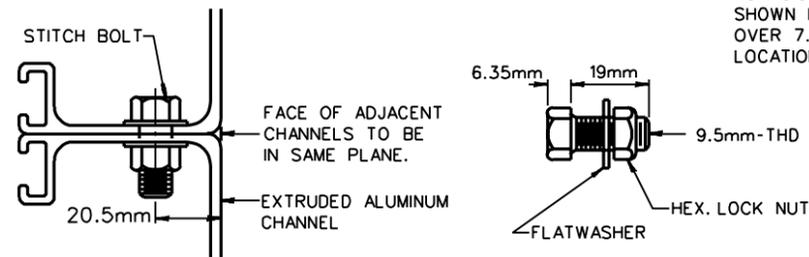
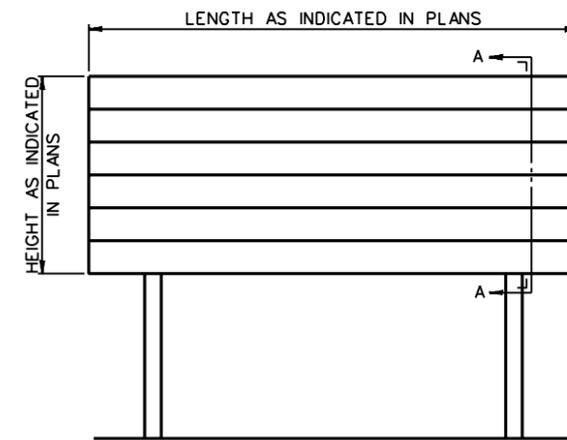
SECTION A-A



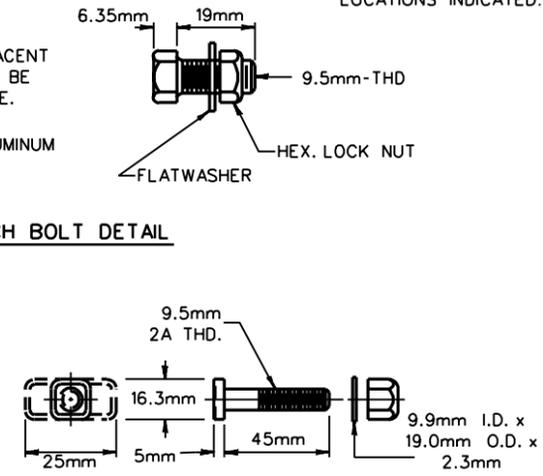
SECTION B-B



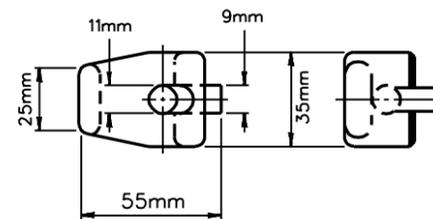
SECTION C-C



STITCH BOLT DETAIL

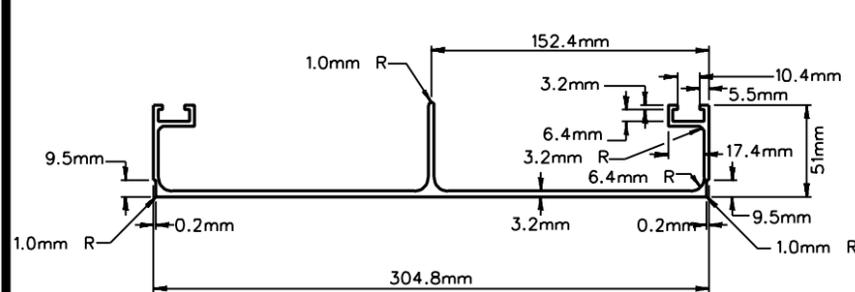


POST CLIP BOLT, NUT AND WASHER

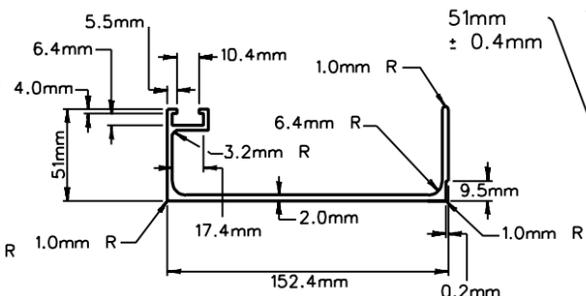


POST CLIP

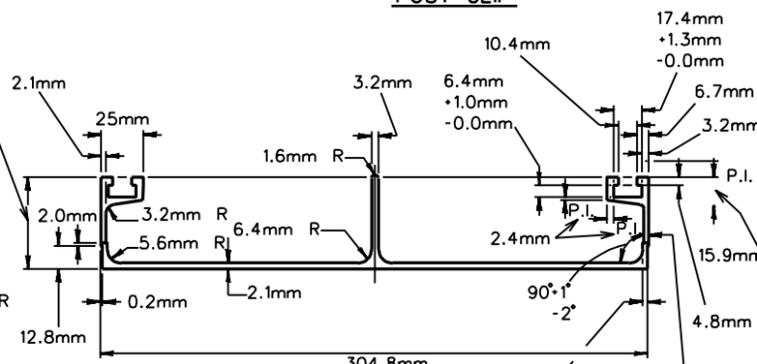
- ▲ STITCH BOLT DETAIL ADDED
- ▲ EXTRUSION REVISED TO INCLUDE REFLECTIVE SHEETING OVERLAP
- ▲ HEX. LOCK NUT AND SIGNATURE BLOCK
- ▲ ADDED EXTRUSION C, REVISED EXTRUSION B, POST CLIP AND BOLT
- ▲ ADDED METRIC



EXTRUSION "A"



EXTRUSION "B"



EXTRUSION "C"

NOTE:
0.8MM R ON ALL INSIDE & OUTSIDE CORNERS UNLESS SPECIFIED OTHERWISE.

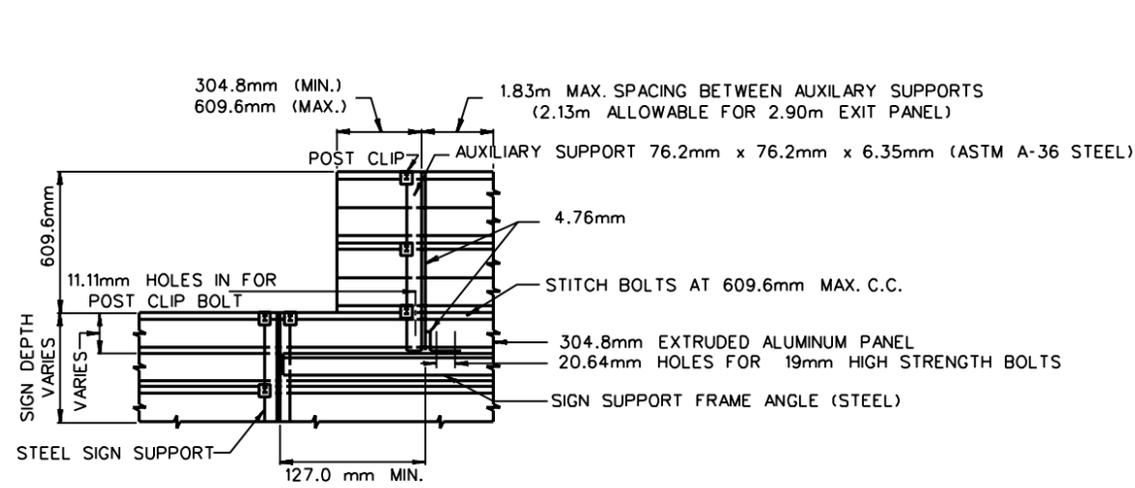
MUST BE FLAT OR CONCAVE (BOTH SIDES)

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
EXTRUDED SIGN PANEL
ALUMINUM

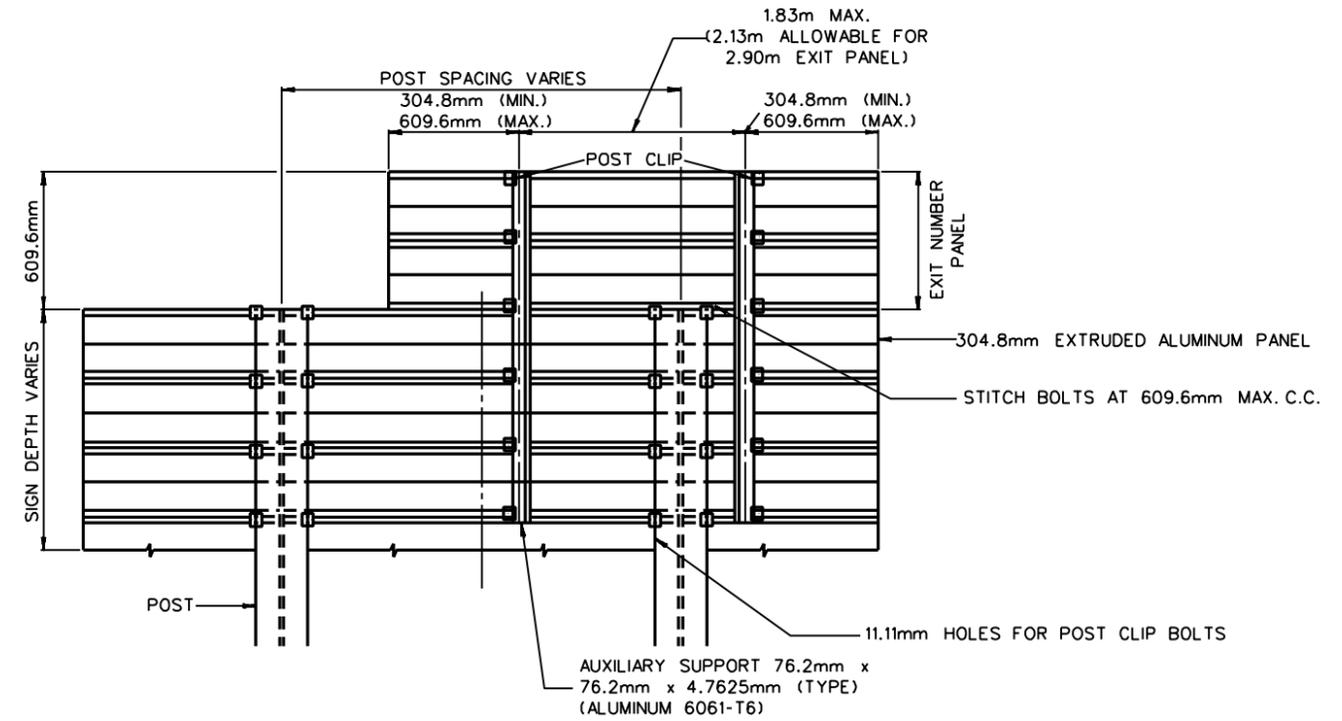
PREPARED: 03/20/67

REVISIONS
▲ 03-06-68
▲ 05-22-68
▲ 10-21-76
▲ 09-16-87
▲ 05-16-94

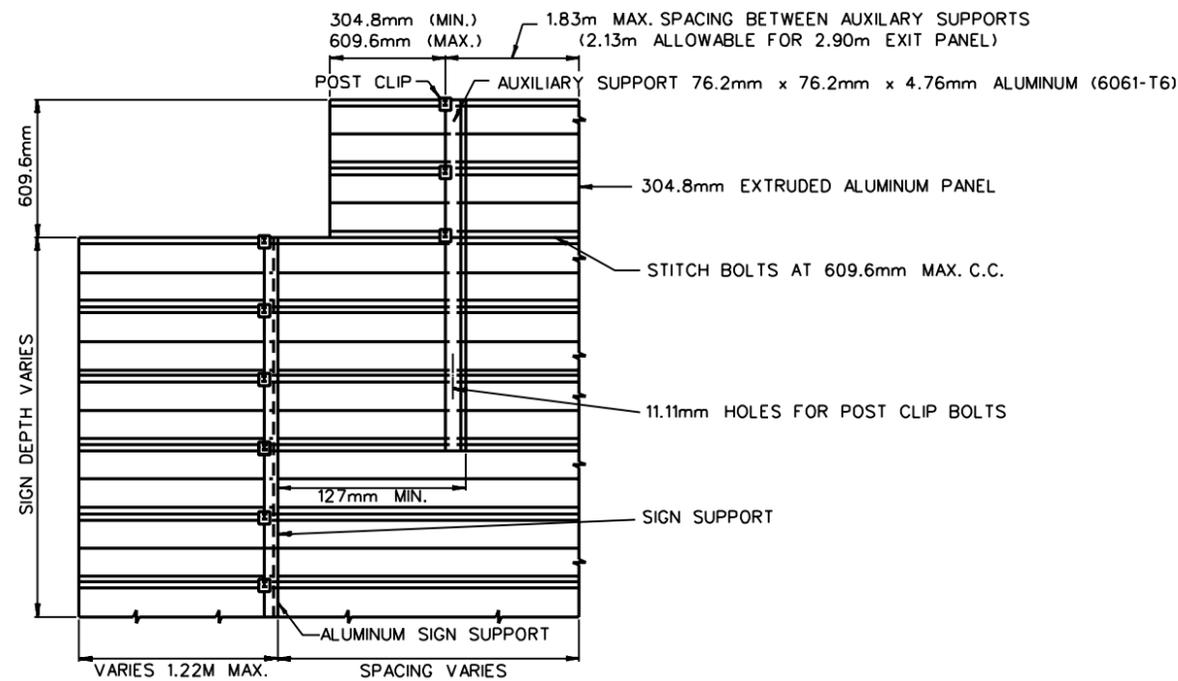
PUBLIC ROADS DIST. NO.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS



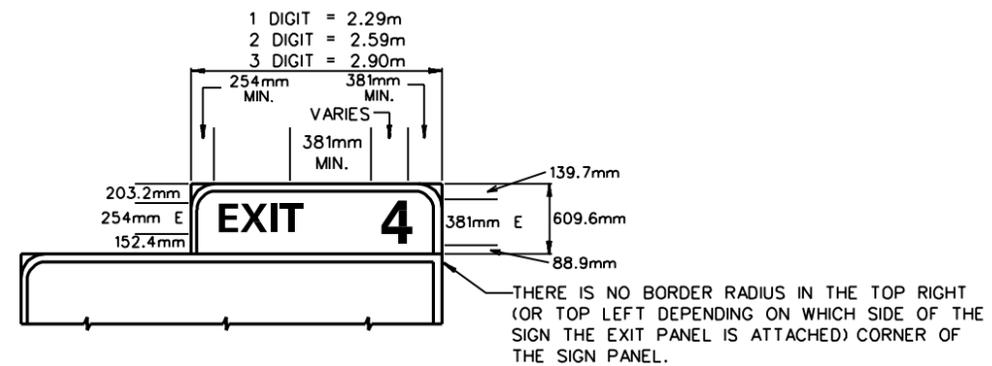
OVERHEAD SIGN WITH STEEL FRAME



GROUND MOUNT SIGN SHOWING ATTACHMENT OF AUXILIARY SUPPORTS



OVERHEAD SIGN WITH ALUMINUM FRAME



NOTE: USE 50mm BORDER AND 75mm BORDER RADIUS ON ALL EXIT PANELS.

NOTE: RIGHT EXIT SHOWN USE OPPOSITE FOR LEFT EXIT.

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
EXIT NUMBER PANEL
ALUMINUM

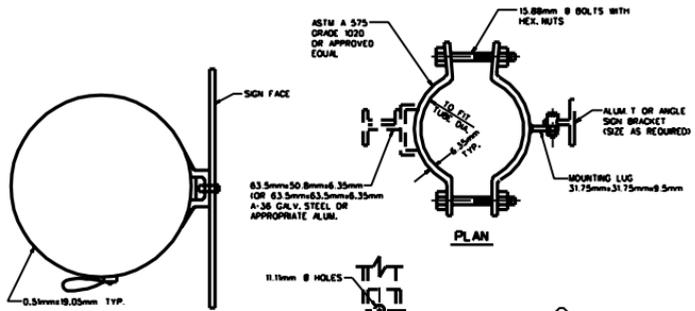
PREPARED: 03/29/67

REVISIONS
△ 05-28-69
△ 04-01-71
△ 04-11-75
△ 10-21-76
△ 05-15-79
△ 05-17-94

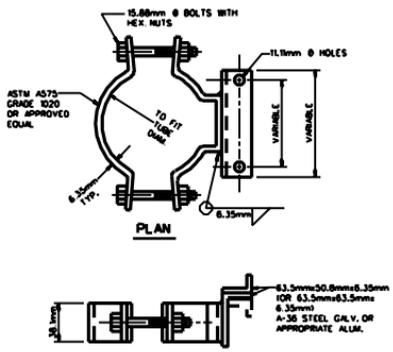
- △ LEGEND HEIGHT
- △ LEGEND HEIGHT & AUXILIARY SUPPORT
- △ LEGEND SIZE ON EXIT PANEL.
- △ LENGTH OF AUXILIARY SUPPORTS
- △ MOVED EXIT PANEL
- △ ADDED METRIC

STANDARD SHEET TE8-1

DATE	BY	CHKD	APP'D	DESIGN	NO.	REV.	DATE

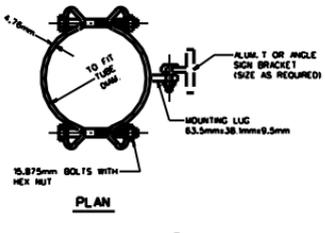


ELEVATION
STAINLESS STEEL BANDING TYPE
(MAX. -0.84m²)

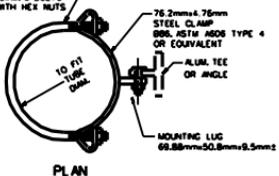


ELEVATION
TYPE I-B
(MAX. -1.86m²)

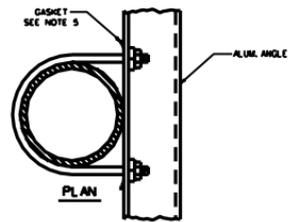
- NOTES:**
1. NORMALLY THERE WILL BE 2 CLAMPS (BRACES) PER SIGN FOLLOWING PUNCHING AND MOUNTING AS DETAILED IN THE TP SERIES.
 2. TYPE I-A CLAMPS SHALL BE USED WITH EXTRUDED PANEL SIGNS FOR BRACKET ATTACHMENT TO EXTRUDED PANEL SIGNS SEE SHEET TE7-L.
 3. TYPE I-B CLAMPS SHALL BE USED WITH FLAT SHEET SIGNS.
 4. WHEN ONLY ONE TYPE I CLAMP IS NECESSARY FOR LONG NARROW SIGNS A 300mm ANGLE MOUNTED VERTICALLY SHALL BE SUBSTITUTED FOR THE MOUNTING LUG.
 5. CONTACT BETWEEN ALUMINUM AND GALVANIZED PARTS SHALL BE PREVENTED WITH A MINIMUM 1.5mm THICK CHLOROPRENE GASKET OR APPROVED SUBSTITUTE. GASKETS ARE NOT REQUIRED BETWEEN STAINLESS STEEL AND ALUMINUM.
 6. U-BOLTS, OTHER BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL FOR USE WITH ALUMINUM MEMBERS, WHEN USED WITH GALVANIZED STEEL MEMBERS, THE U-BOLTS, NUTS AND WASHERS MAY BE GALVANIZED STEEL.



ELEVATION
TYPE I-A
(MAX. -1.86m²)



TYPICAL CLAMPS FOR TUBULAR SUPPORTS
(GALVANIZED)



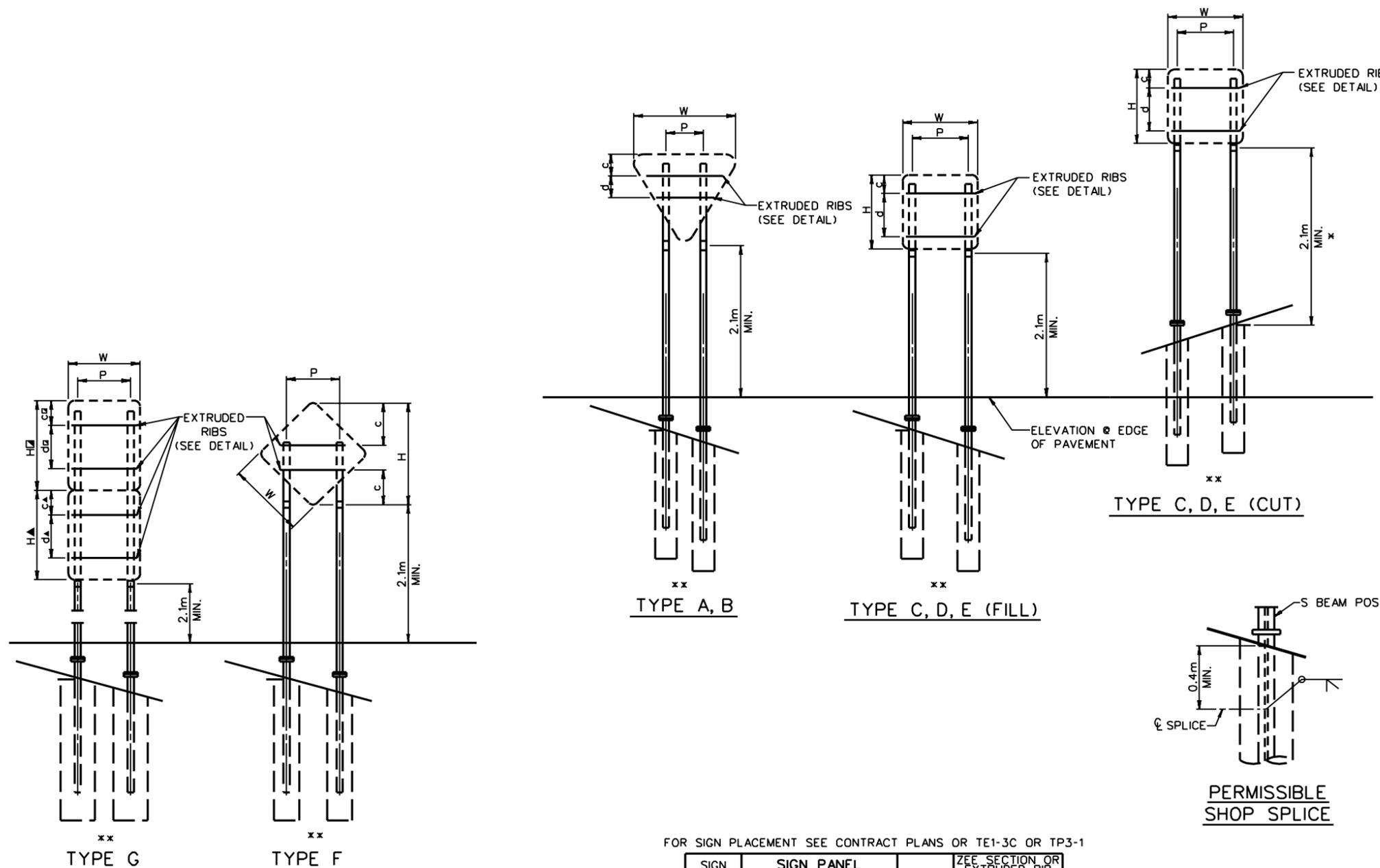
ELEVATION
TYPE II (ALT. 2)

- ▲ HOLE SHOWN
- ▲ HOLE TYPE AND NUMBER
- ▲ HOLE SIZE

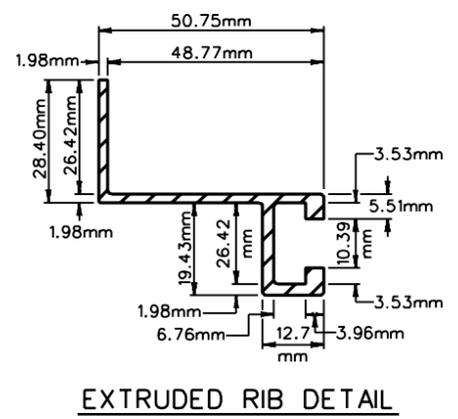
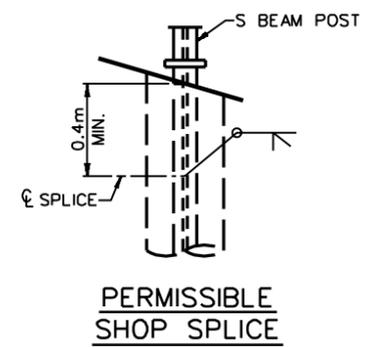
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
ROADSIDE SIGN SUPPORTS—CLAMPS
TUBULAR

DATE	BY	CHKD	APP'D	DESIGN	NO.	REV.	DATE

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



* - NOTE - SAME CRITERIA APPLY FOR TYPES A, B, G, AND F FOR CUT SECTIONS
 ** - FOR FOOTING DETAILS SEE TE1-3C

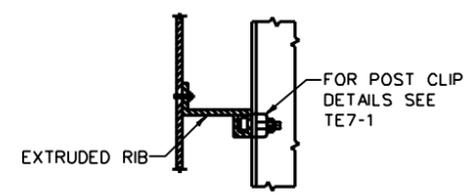


EXTRUDED RIB DETAIL

FOR SIGN PLACEMENT SEE CONTRACT PLANS OR TE1-3C OR TP3-1

POST SPACING	
TYPE SIGN	P
A	750mm
B	600mm
C	750mm
D	750mm
E	750mm
F	750mm
G	750mm

SIGN STRUC. TYPE	SIGN PANEL				CLAMPS	ZEE SECTION OR EXTRUDED RIB	
	W	H	c	d		NO.	LENGTH
A	1500mm		150mm	325mm	4	2	950mm
B	1200mm		150mm	200mm	4	2	800mm
C	1200mm	1200mm	350mm	500mm	4	2	950mm
D	1200mm	1500mm	375mm	750mm	4	2	950mm
E	1200mm	900mm	300mm	300mm	4	2	950mm
F	1200mm		500mm		4	2	950mm
G	1200mm	1500mm	375mm	750mm	4	2	950mm
	1200mm	1200mm	350mm	500mm			



ELEVATION
TYPICAL WIDE FLANGE
&
RIB ASSEMBLY

- △ DELETED SIGN PLACEMENT AND SHIM DETAIL
- △ ADDED EXTRUDED RIB DETAIL
- △ ADDED UPHILL RQMNTS, REVISED RIB
- △ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
FLAT SHEET SIGNS ON
BREAKAWAY SUPPORTS

PREPARED: 09/18/74

REVISIONS
△ 06-01-76
△ 10-21-76
△ 12-18-87
△ 01-13-93
△ 05-16-94

STANDARD SHEET TE10-2

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

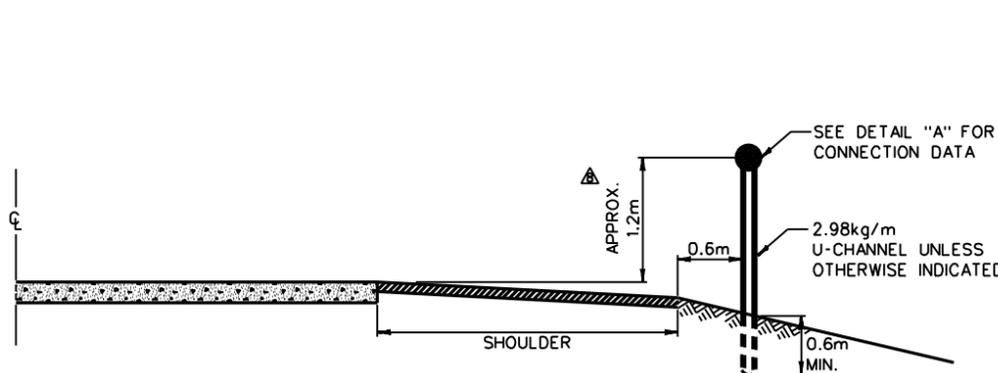
SPACING FOR HIGHWAY DELINEATORS

RADIUS IN m	SPACING ON CURVE	SPACING IN ADVANCE & BEYOND CURVE		
		1ST SPACE	2ND SPACE	3RD SPACE
>3 050 TO 1 165	100m	100m	100m	100m
1 164 - 1 035	55m	100m	100m	100m
1 034 - 790	50m	100m	100m	100m
789 - 640	45m	90m	100m	100m
639 - 550	40m	80m	100m	100m
549 - 455	36m	72m	100m	100m
454 - 395	33m	66m	100m	100m
394 - 335	30m	60m	100m	100m
334 - 260	27m	54m	81m	100m
259 - 205	24m	48m	72m	100m
204 - 160	21m	42m	63m	100m
159 - 120	18m	36m	54m	100m
119 - 83	15m	30m	45m	100m
82 - 55	12m	24m	36m	72m
54 - 37	9m	18m	27m	54m
36 - 23	6m	12m	18m	36m
>23	6m	6m	9m	18m

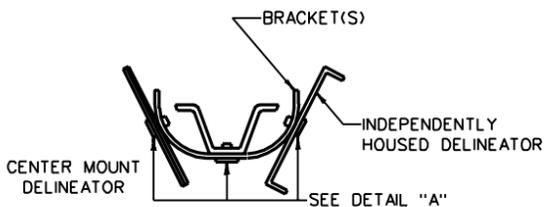
NOTES

DELINEATOR SPACING SHALL BE MEASURED AT THE EDGE OF PAVEMENT NEAREST TO THE LOCATION OF DELINEATOR. SPACING SHALL BE DETERMINED FROM THE CURVE DATA SHOWN ON THE CURVE DATA SHEET OF THE PLANS. SPACING ON TANGENTS SHALL BE 100m.

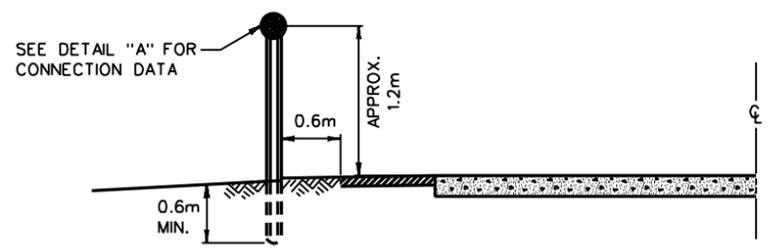
THE SPACING S ON THE CURVE IS FOUND FROM THE FORMULA $S = 1.656 \sqrt{R - 15.24}$, WHERE R IS THE RADIUS OF THE CURVE IN FEET. THE SPACING TO THE FIRST DELINEATOR IN ADVANCE OF AND BEYOND THE CURVE IS 2 S, TO THE NEXT DELINEATOR 3S, AND TO THE NEXT 6S, BUT NOT TO EXCEED 100m. MINIMUM SPACING IS 6m.



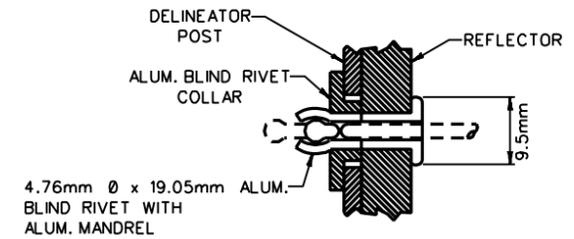
**DELINEATOR PLACEMENT
TYPICAL SECTION**



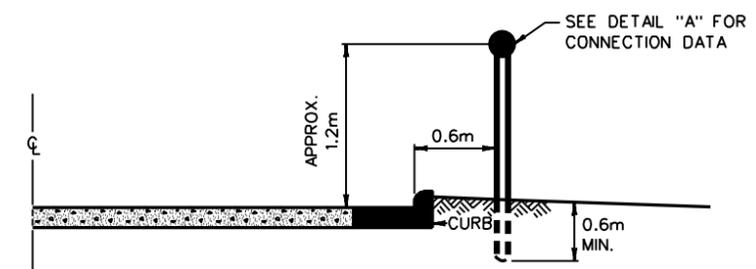
**WINGED CHANNEL
BIDIRECTIONAL MOUNTING
DELINEATORS (WHEN NOTED ON
PLANS FOR 2-LANE ROADWAYS)**



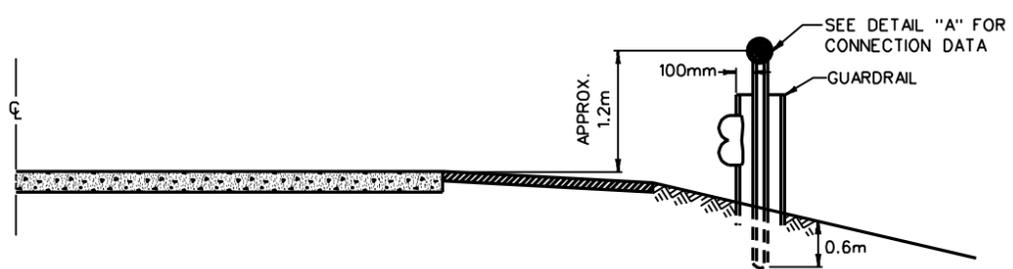
**DELINEATOR PLACEMENT
TYPICAL SECTION - LEFT EDGE OF RAMP**



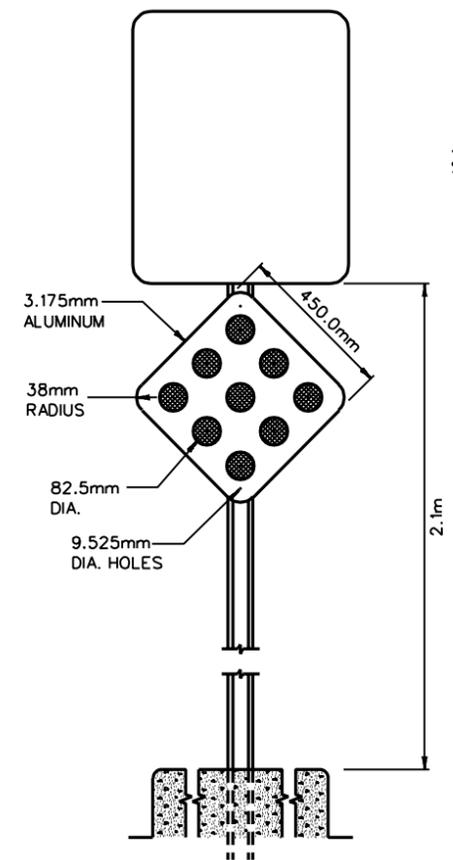
**DETAIL "A"
DELINEATOR ATTACHMENT**



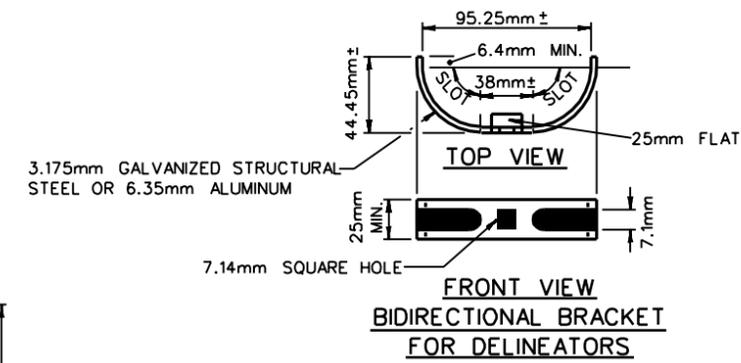
**DELINEATOR PLACEMENT
TYPICAL SECTION WITH CURBING**



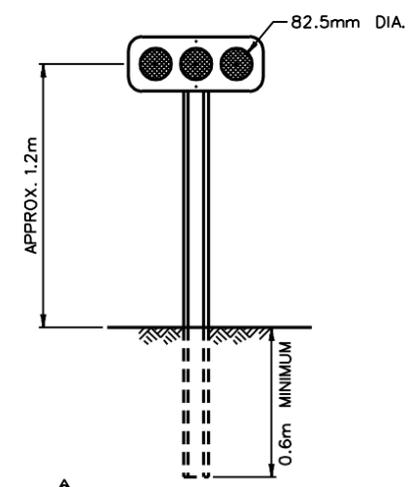
**DELINEATOR PLACEMENT
TYPICAL SECTION WITH GUARDRAIL**



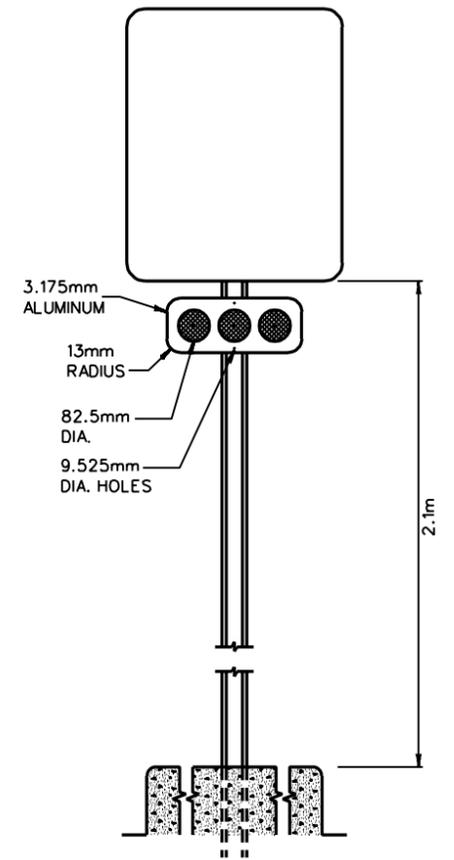
TYPICAL XR-9 INSTALLATION



**FRONT VIEW
BIDIRECTIONAL BRACKET
FOR DELINEATORS**



TYPICAL XR-3 INSTALLATION



TYPICAL XR-3 INSTALLATION

- ▲ XR-9 FROM .064 TO .125, SPACING FORMULA ADDED, MEDIAN DETAIL.
- ▲ DELINEATOR CHART DELETED REDUCED SPACING BELOW 1.5"
- ▲ DELINEATOR PLACEMENT ON RAMP
- ▲ XR-3 CONNECTION DETAIL.
- ▲ BIDIRECTIONAL MOUNTS
- ▲ XR-3, XR-9
- ▲ CHANGED 4'-0" TO APPROX. 4'-0", CORRECTED XR-3
- ▲ ADDED METRIC

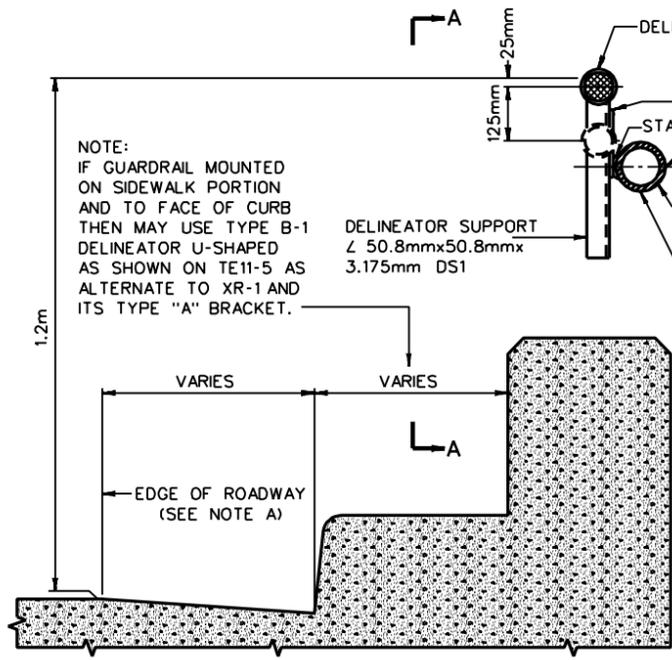
**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
HIGHWAY DELINEATORS-GENERAL**

PREPARED: 03/00/67

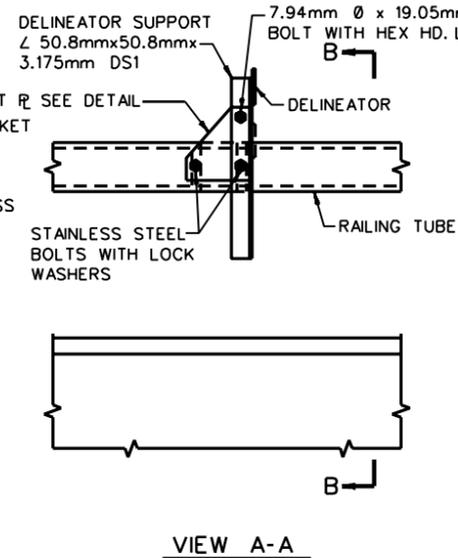
REVISIONS
▲ 04-22-68
▲ 06-06-68
▲ 09-09-69
▲ 11-25-69
▲ 04-01-71
▲ 11-15-76
▲ 10-06-77
▲ 09-13-93
▲ 05-13-94

STANDARD SHEET TE11-1

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

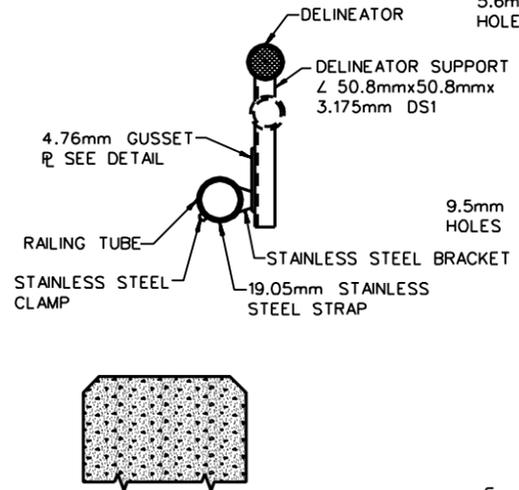


DETAIL SHOWING DELINEATOR ASSEMBLY ATTACHED TO ROADWAY SIDE OF TUBE RAILING

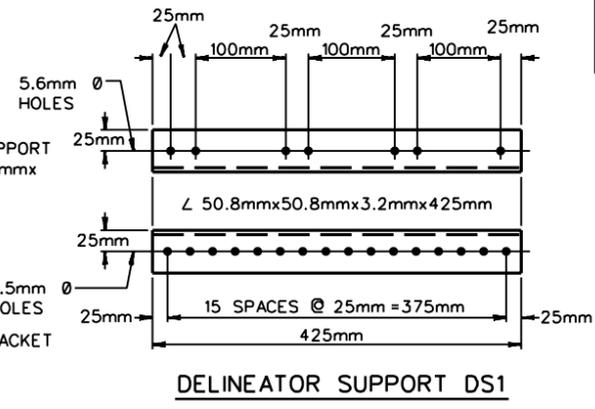


VIEW A-A

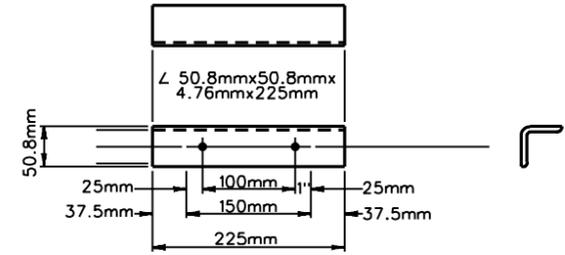
TYPE "A"



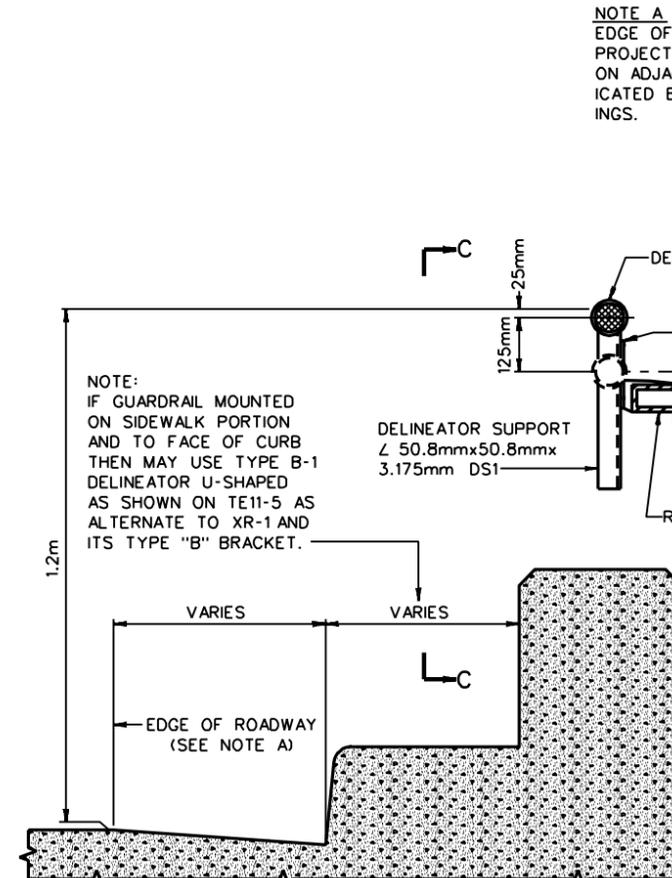
SECTION B-B SHOWING ATTACHMENT TO FASCIA SIDE OF RAILING



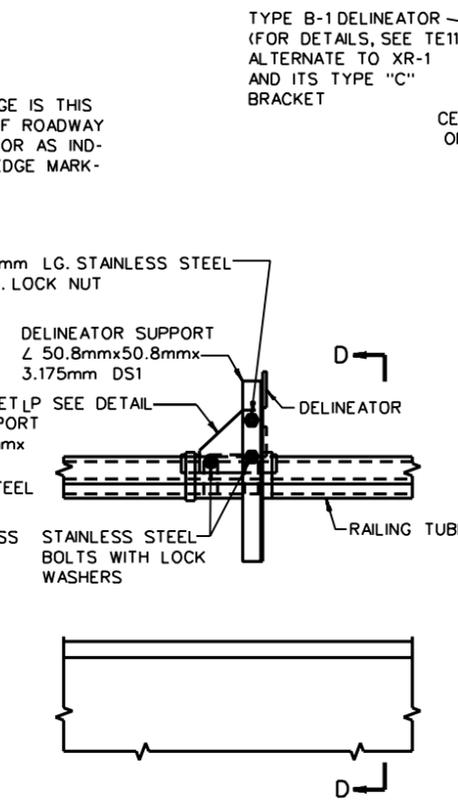
DELINEATOR SUPPORT DS1



DELINEATOR SUPPORT DS2

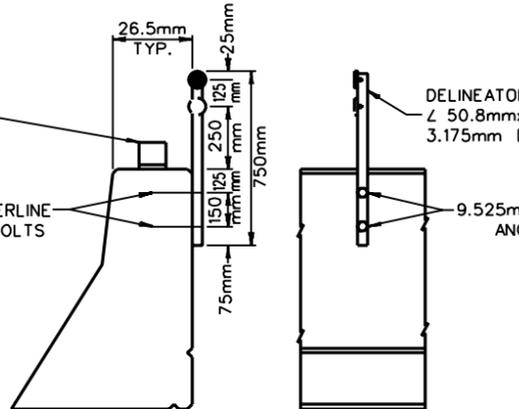


DETAIL SHOWING DELINEATOR ASSEMBLY ATTACHED TO ROADWAY SIDE OF RECTANGULAR TUBE RAILING

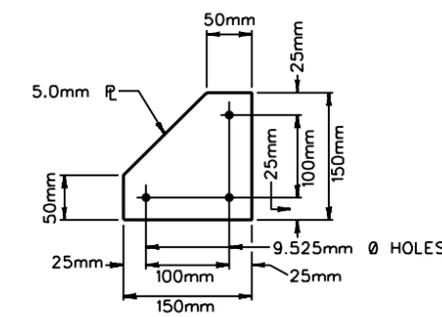


VIEW C-C

TYPE "B"



SECTION D-D SHOWING ATTACHMENT TO FASCIA SIDE OF RAILING



GUSSET PLATE

NOTE
 DELINEATOR ASSEMBLY SHALL BE ATTACHED TO ROADWAY OR FASCIA SIDE OF RAILING IN ACCORDANCE WITH THE SPECIFICATIONS.
 GUSSET PLATE SHALL BE MADE OF THE SAME MATERIAL AS THE DELINEATOR SUPPORT.

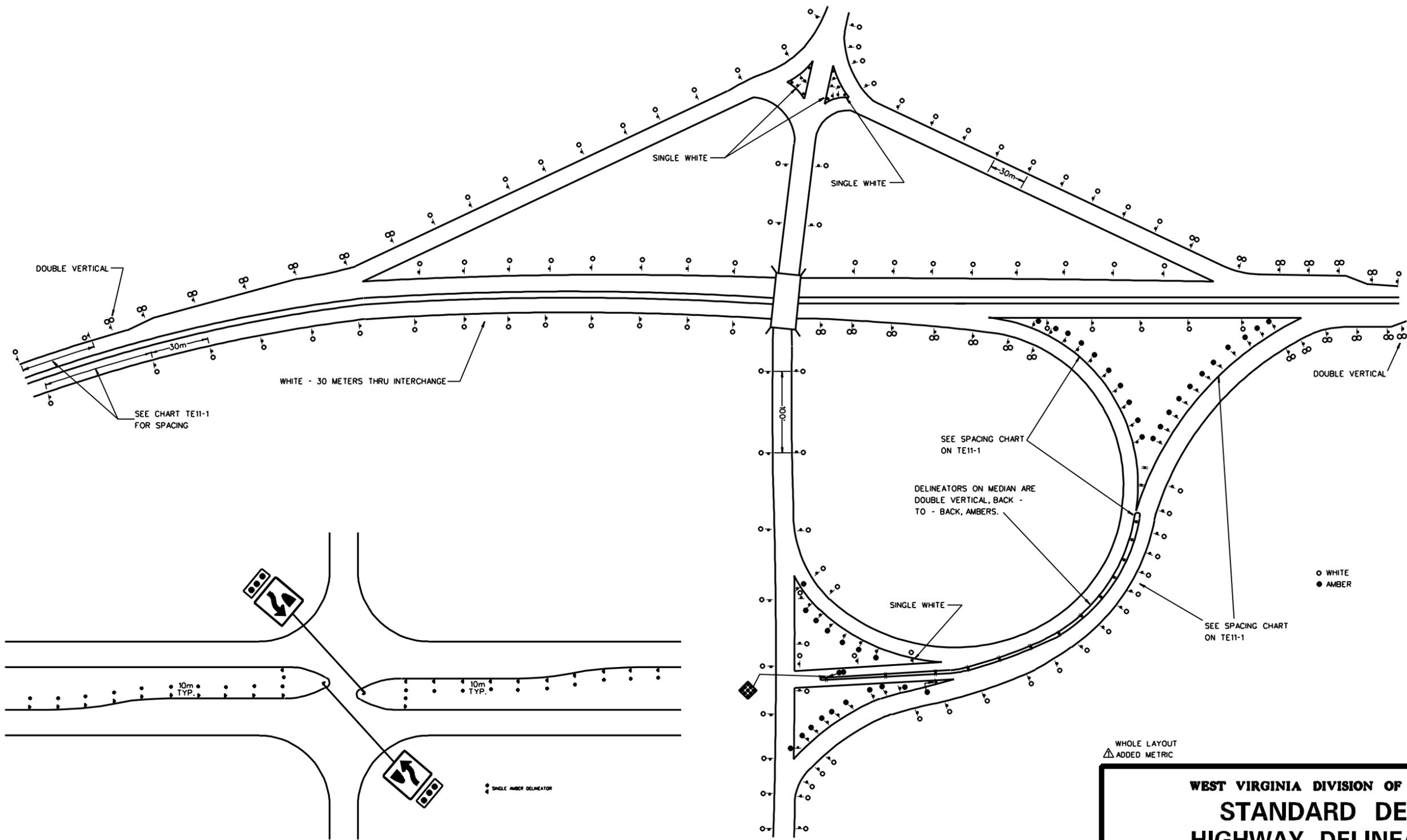
- ▲ ALUMINUM BOLTS TO STAINLESS STEEL BOLTS.
- ▲ DELINEATOR SUPPORTS
- ▲ TYPE "B" BRACKETS
- ▲ SIGNATURE BLOCK
- ▲ ADDED TYPE B-1 DELINEATOR ALTERNATES
- ▲ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
 STANDARD DETAIL
 HIGHWAY DELINEATORS
 BRACKETS ON STRUCTURES

PREPARED: 03/22/67

REVISIONS
▲ 04-08-69
▲ 09-10-69
▲ 08-07-70
▲ 11-15-76
▲ 02-26-93
▲ 05-13-94

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



WHOLE LAYOUT
 ▲ ADDED METRIC

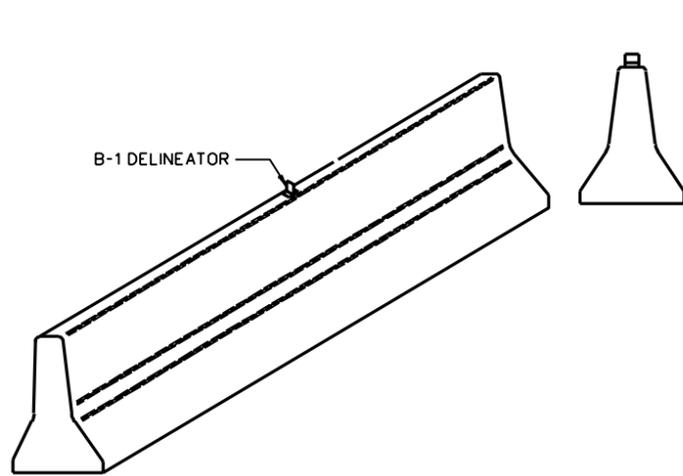
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
HIGHWAY DELINEATORS
INTERCHANGE SPACING
AND SPACING
FOR LEFT TURN LANES

PREPARED: 08/00/64

REVISIONS
11-15-76
▲ 05-13-94

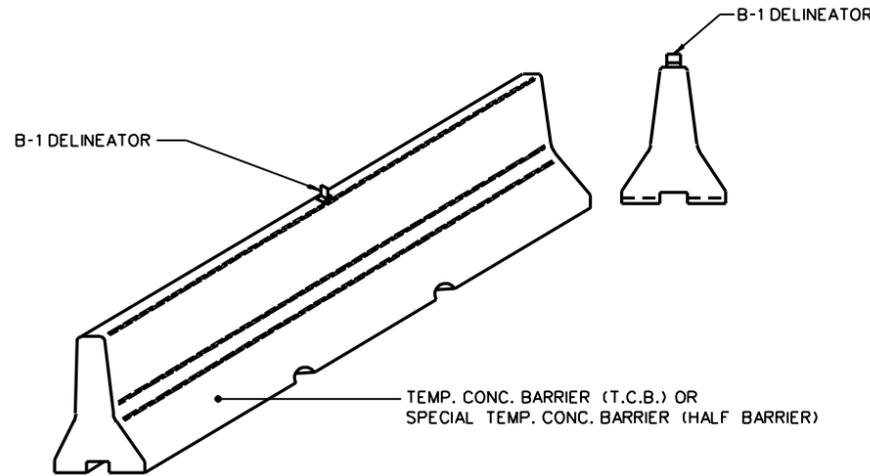
STANDARD SHEET TE11-3

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



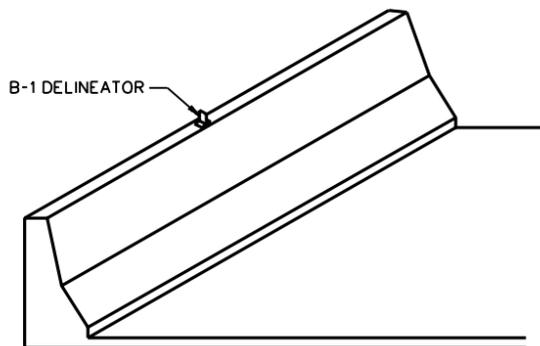
PERMANENT MEDIAN BARRIER

TYPE AND COLOR	YELLOW (AMBER) B-1S, TWO SIDED, MOUNTED ATOP THE BARRIER AS SHOWN ABOVE AND NOTE E. ADDITIONAL SITUATION: WHERE PERMANENT MEDIAN BARRIER IS USED AS A FINAL RETAINING WALL, INSTALL WHITE B-1S AS SHOWN ABOVE AND NOTE E, PAYMENT PART OF NORMAL 661 DELINEATOR BID ITEM.
HEIGHT	B-1 MOUNTED ATOP BARRIER.
SPACING	SEE TE11-1.
ATTACHMENT	B-1 MOUNTED ATOP BARRIER AS DETAILED AND NOTE E.
BID ITEM	NORMAL 661 DELINEATOR BID ITEM.
OTHER	INSTALLATION BID INCIDENTAL TO DELINEATOR BID ITEM.



TEMPORARY CONCRETE BARRIER

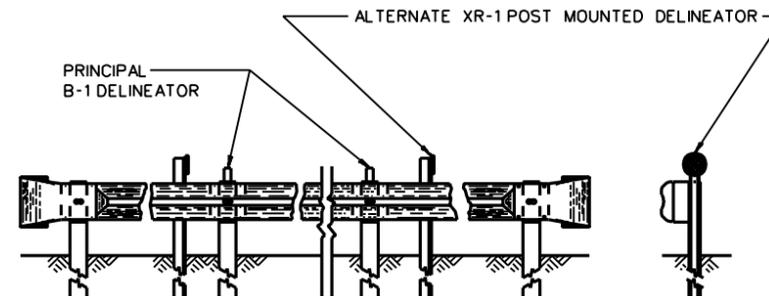
TYPE AND COLOR	AMBER B-1S, TWO SIDED, MOUNTED AS SHOWN ON TEMPORARY CONCRETE BARRIER ABOVE AND NOTE E. EXCEPTION: SUBSTITUTE EITHER OF ABOVE WITH SINGLE CRYSTALS (WHITES) ONE SIDED WHEN NOT SEPARATING OPPOSING TRAFFIC.
HEIGHT	B-1 MOUNTED ON FLAT PORTION OF TOP AS SHOWN ON TEMPORARY CONCRETE BARRIER ABOVE AND NOTE E.
SPACING	6m OR AS NOTED ON PLANS (MAXIMUM IS 30m ON TANGENTS - 15m ON CURVES).
ATTACHMENT	B-1: SEE DETAIL AS SHOWN ON TEMPORARY CONCRETE BARRIER ABOVE AND NOTE E.
BID ITEM	DELINEATOR BRACKET AND ATTACHMENT BID INCIDENTAL TO TEMPORARY CONCRETE BARRIER.
OTHER	INSTALLATION, MAINTENANCE, CLEANING AND REMOVAL BID INCIDENTAL TO TEMPORARY CONCRETE BARRIER.



MEDIAN OR LEFT BRIDGE PARAPETS

WHERE PERMANENT GUARDRAIL MEDIAN BARRIER OR PERMANENT CONCRETE MEDIAN BARRIER IS IN EXISTENCE ON THE ADJACENT ROADWAY SECTIONS.

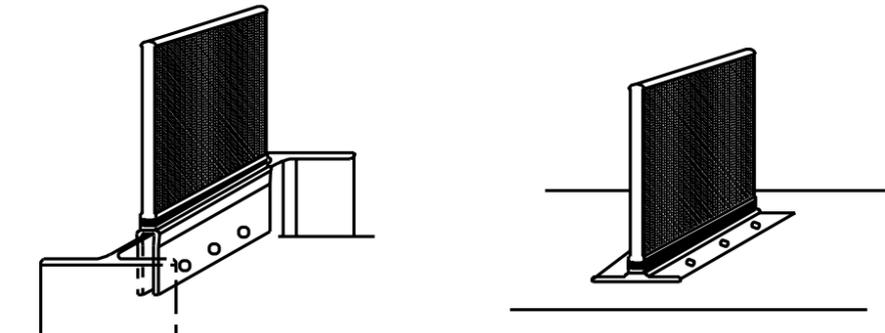
TYPE AND COLOR	YELLOW (AMBER) B-1, MOUNTED ATOP THE BARRIER AS SHOWN ABOVE AND NOTE E.
HEIGHT	1.2m CONFORMING TO TE11-1 AND SECTION 661 OF SPECIFICATIONS. B-1 MOUNTED ATOP PARAPET AS SHOWN ABOVE AND NOTE E.
SPACING	SEE TE11-1.
ATTACHMENT	B-1 MOUNTED ATOP BARRIER AS DETAILED AND NOTE E.
BID ITEM	NORMAL 661 DELINEATOR BID ITEM.
OTHER	INSTALLATION BID INCIDENTAL TO DELINEATOR BID ITEM.



TEMPORARY GUARDRAIL BARRIER

TYPE AND COLOR	PRINCIPAL AMBER B-1S AS SHOWN ON TEMPORARY GUARDRAIL BARRIER ABOVE AND NOTE E OR USE ALTERNATE YELLOW (AMBER) XR-1S BACK-TO-BACK CONFORMING TO SECTION 661 OF SPECIFICATIONS WHEN SEPARATING OPPOSING TRAFFIC. EXCEPTION: SUBSTITUTE EITHER OF ABOVE WITH SINGLE CRYSTALS (WHITES) ONE SIDED WHEN NOT SEPARATING OPPOSING TRAFFIC.
HEIGHT	PRINCIPAL B-1 MOUNTED ATOP THE I-BEAM PORTION OF THE GUARDRAIL ELEMENT AS SHOWN IN DETAILS FOR TYPE B-1 DELINEATOR OR USE ALTERNATE XR-1S) AT 4' CONFORMING TO TE11-1 AND SECTION 661 OF SPECIFICATIONS..
SPACING	30m ON TANGENTS, 15m ON CURVES, OR AS NOTED ON THE PLANS.
ATTACHMENT	PRINCIPAL B-1S, SEE DETAILS FOR TYPE B-1 DELINEATOR OR FOR ALTERNATE XR-1S, SEE TE11-1.
BID ITEM	DELINEATOR, BRACKET AND ATTACHMENT BID INCIDENTAL TO TEMPORARY GUARDRAIL BARRIER.
OTHER	INSTALLATION, MAINTENANCE, CLEANING AND REMOVAL BID INCIDENTAL TO TEMPORARY GUARDRAIL BARRIER.

- GENERAL NOTES-**
- THE TYPE DELINEATOR (XR-1 OR B-1) AND TYPE ATTACHMENT FOR XR-1 (DETAIL 'A' OR 'B') SHALL BE CONSISTENT THROUGHOUT THE PROJECT.
- NOTES FOR TYPE B-1 DELINEATORS-**
- GENERAL DESCRIPTION:**
- DELINEATORS SHALL CONSIST OF REFLECTOR UNITS CAPABLE OF CLEARLY REFLECTING LIGHT UNDER NORMAL ATMOSPHERIC CONDITIONS FROM A DISTANCE OF 300m WHEN ILLUMINATED BY THE UPPER BEAM OF STANDARD AUTOMOBILE LIGHTS.
 - THE DELINEATOR SHALL CONSIST OF AN UPRIGHT PANEL (FOR REFLECTING), A CO-EXTRUDED FLEXIBLE HINGE, AND A T-SHAPED BASE OR U-CHANNEL SHAPED BASE AS APPROPRIATE.
 - DETAILED SPECIFICATIONS:
 - UPRIGHT PANEL:**
THE REFLECTING SURFACE (101.6mmx101.6mm) - CAPABLE OF REFLECTING LIGHT FROM WIDE ANGLES. NOMINAL DIMENSIONS ARE:
 - FOR T-SHAPED 114.3mm HEIGHT x 101.6mm WIDE x 2.54mm
 - FOR U-CHANNEL 114.3mm HEIGHT x 101.6mm WIDE x 2.413mm.
 - HINGE:**
A POLYURETHANE/VINYL COMPOUND DESIGNED TO WITHSTAND REPEATED IMPACTS AFTER WHICH IT RETURNS TO ITS FUNCTIONING POSITION.
 - BASE:**
 - T-SHAPED**
A RIGID PVC COMPOUND DESIGNED FOR MOUNTING AT TOP OR SIDE OF BARRIER OR PARAPET AS APPROPRIATE.
 - U-CHANNEL**
A RIGID PVC COMPOUND DESIGNED TO MOUNT (SNAP) OVER THE GUARDRAIL I-BEAM SUPPORT.
 - OPTICAL PERFORMANCE:**
MUST MEET THE REQUIREMENTS OF ASTM-D4956 TYPE IV OR TYPE V.
 - MOUNTING:**
THE UNIT SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER AND THE ADHESIVE SHALL BE APPLIED TO THE BASE OF THE DELINEATOR FOR BONDING TO CONCRETE BARRIER OR TO THE U-SHAPED BASE PORTION OF THE DELINEATOR FOR BONDING TO GUARDRAIL. DO NOT INSTALL WHEN TEMPERATURES LESS THAN 50° FAHRENHEIT.
 - THE COLOR SHALL BE WHITE OR YELLOW AS APPROPRIATE (OR AS NOTED) AND THE REFLECTING SURFACE SHALL BE TWO SIDED OR ONE SIDED AS APPROPRIATE (OR AS NOTED).



TYPE B-1 DELINEATOR

SHAPE NOMINAL, PROVIDED MEETS MINIMUM DESIGN SPECIFICATIONS AS OUTLINED ON THIS SHEET.

- △ MODIFY TYPE B-1 DEL. DETAIL, T.C.B. & T.G.B. NOTES AND DETAIL
- △ COMPLETELY REVISED B-1 DETAILS AND NOTES, MADE IT THE PRINCIPAL FOR ALL FOUR SITUATIONS, DELETED DETAILS 'A', 'B', AND 'C'.
- △ ADDED METRIC

**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
HIGHWAY DELINEATORS FOR:**

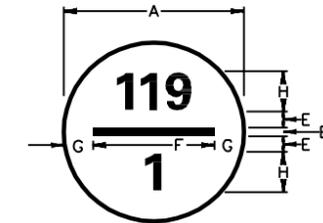
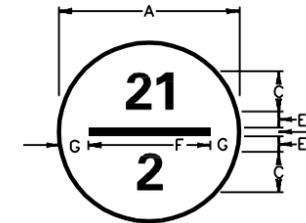
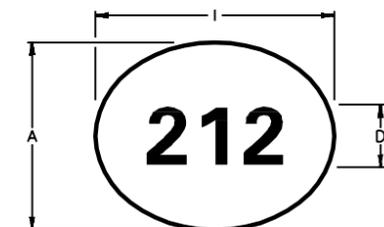
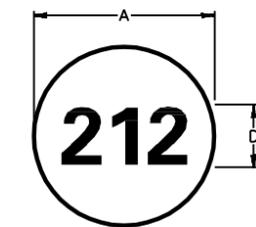
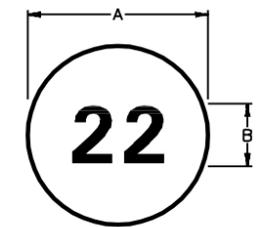
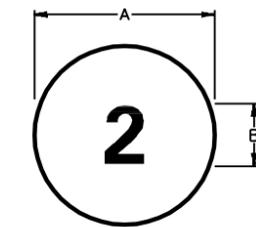
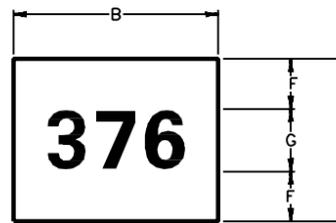
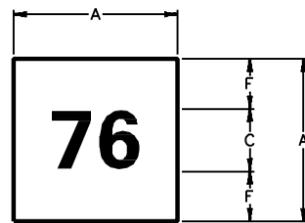
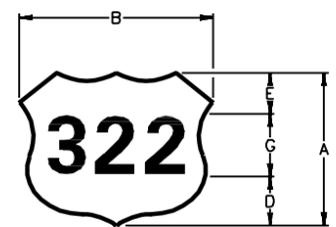
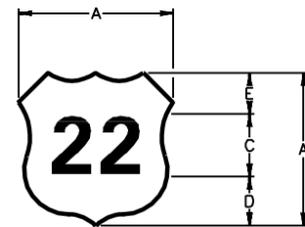
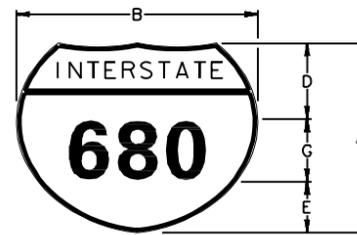
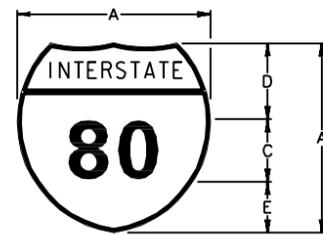
- PERMANENT MEDIAN BARRIER
- TEMPORARY CONCRETE BARRIER
- TEMPORARY GUARDRAIL BARRIER
- MEDIAN OR LEFT BRIDGE PARAPETS WHERE APPLICABLE

PREPARED: 04/16/82
REVISIONS
△ 07-10-89
△ 02-26-93
△ 05-13-94

DEFINITIONS:
XR-1: NORMAL DELINEATOR, REFLEX REFLECTOR, CONFORMING TO SECTION 661 OF SPECIFICATIONS, THAT IS MOUNTED ON A POST OR BRACKET.
B-1: SPECIAL DELINEATOR AS DESCRIBED IN DETAIL ON THIS SHEET.

STANDARD SHEET TE11-5

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



LEGEND SIZE	DIMENSION (INCHES)															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
300.0	600.0	750.0	300.0-D	162.5	137.5	150.0	300.0-C									
450.0	900.0	1125.0	450.0-D	243.75	206.25	225.0	450.0-C									
600.0	1200.0	1500.0	600.0-D	325.0	275.0	300.0	600.0-C									

SHIELD SIZE	DIMENSION (INCHES)															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
** 150.0	150.0	75.0-C	50.0-C	50.0-C	6.25	125.0	13	37.5-C								
** 300.0	300.0	150.0-C	100.0-C	100.0-C	12.5	250.0	25	75.0-C								
** 600.0	600.0	300.0-D	200.0-C	300.0-C	25.0	500.0	50	150.0-C	750.0							
** 900.0	900.0	450.0-D	300.0-C	450.0-C	37.5	750.0	75	225.0-C	1125.0							

U.S. & W.VA. SHIELDS: SILVER ENCAPSULATED LENS WITH BLACK NUMERALS.

INTERSTATE SHIELDS: UPPER SECTION, RED ENCAPSULATED LENS BACKGROUND.
LOWER SECTION, BLUE ENCAPSULATED LENS BACKGROUND.
NUMERALS, SILVER ENCAPSULATED LENS.

** SILVER ENCAPSULATED LENS SHEETING WITH BLACK DIRECT APPLY COPY.

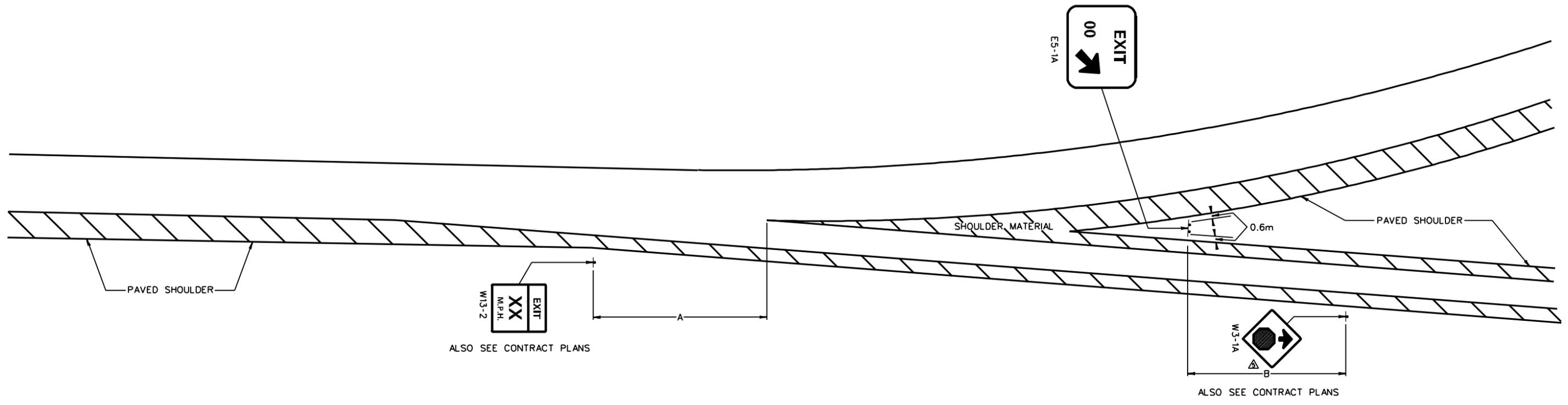
- △ SIGNATURE BLOCK
- △ ADDED DETAIL (OVAL) SHIELD
- △ ADDED METRIC

**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
SHIELD DETAILS
FOR GUIDE SIGNS**

PREPARED: / /
REVISIONS
04-22-75
△ 11-15-76
△ 09-30-77
△ 05-13-94

STANDARD SHEET TE12-1

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



W13-2
M.P.H.
EXIT
XX
ALSO SEE CONTRACT PLANS

W3-1A
ALSO SEE CONTRACT PLANS

SIGN *	A	B
W13-2	0m - 30m	
W3-1A		30m - 60m

* NOTE:
ONLY ONE SIGN TO BE USED AT ANY OFF-RAMP.

- △ DIM. A LOCATION
- △ DIM. A LOCATION
- △ SIGN NUMBERS
- △ SUBSTITUTED W3-1A FOR W3-1, ADDED NOTE TO SEE CONTRACT PLANS
- △ CORRECTED B DIST. AND W3-1A
- △ ADDED METRIC

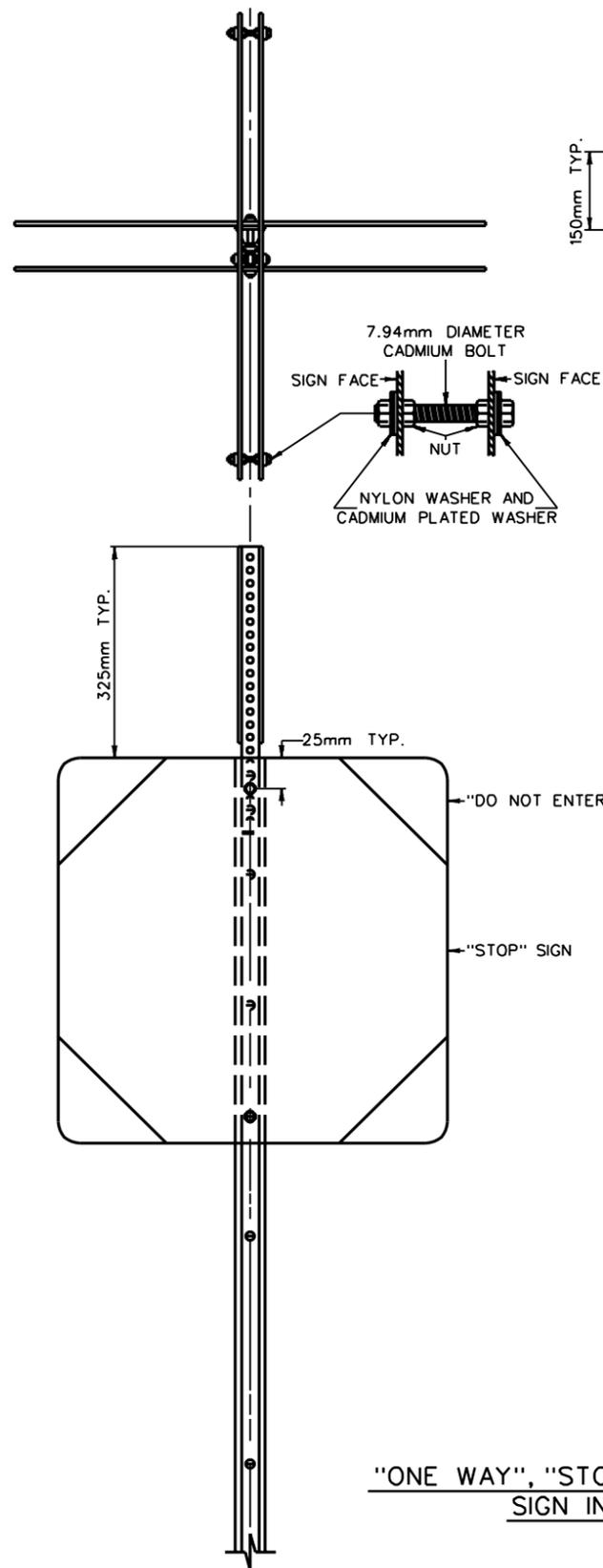
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
EXIT SIGN LOCATION

PREPARED: / /

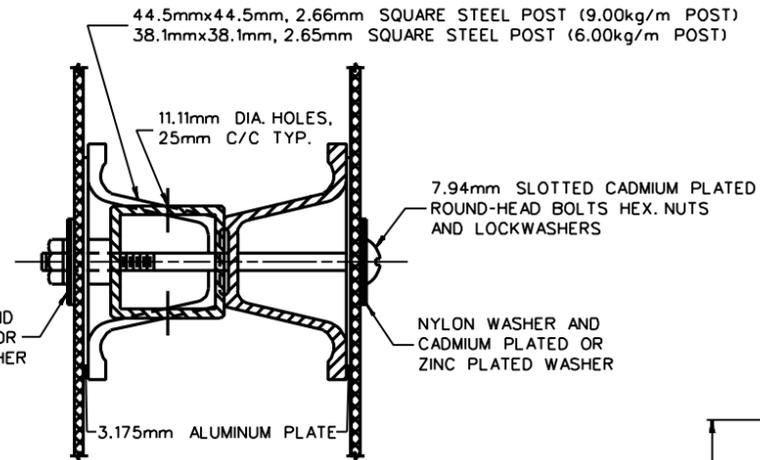
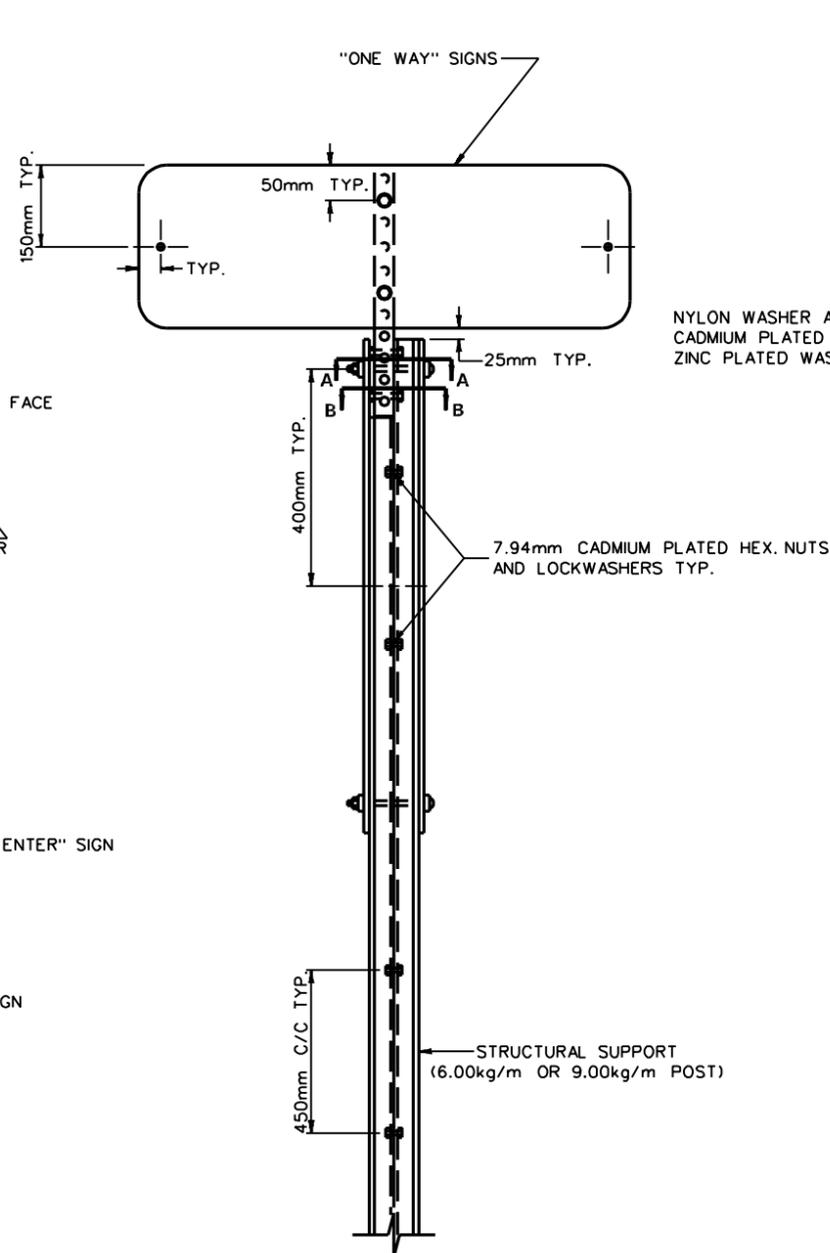
REVISIONS
△ 11-10-70
△ 01-19-71
△ 11-15-76
△ 03-11-93
△ 09-13-93
△ 05-13-94

STANDARD SHEET TE15-1

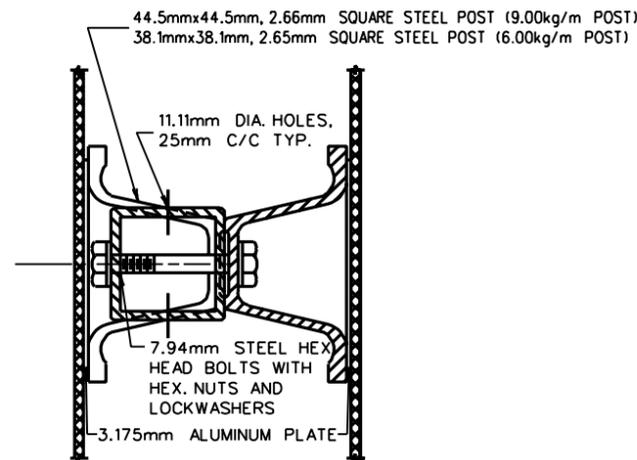
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



"ONE WAY", "STOP", "DO NOT ENTER",
SIGN INSTALLATION



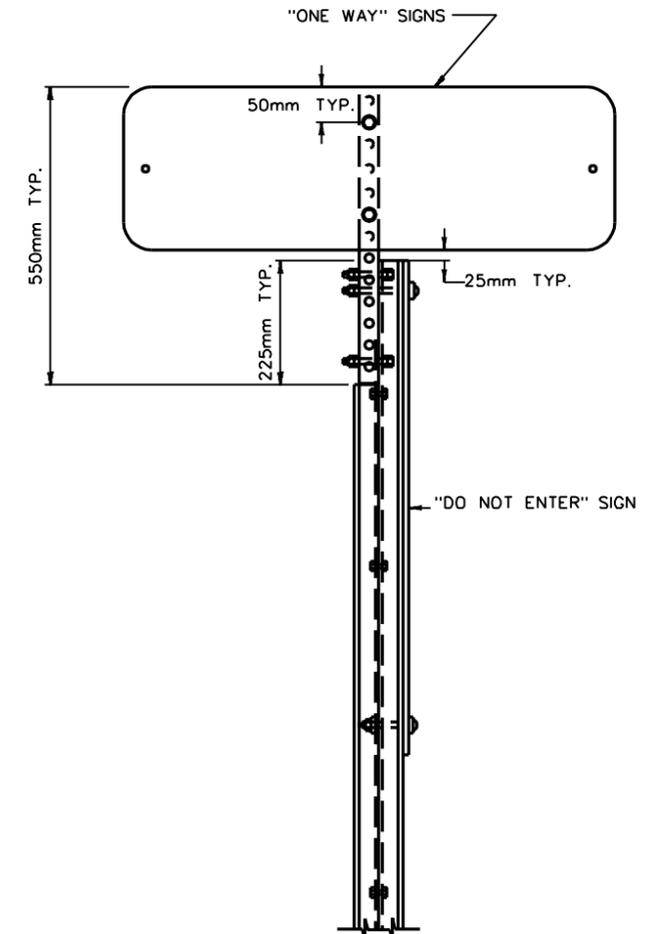
SECTION A-A



SECTION B-B

NOTES:

MATERIALS
ALL SIGN MATERIALS SHALL BE IN ACCORDANCE WITH SECTION 661.
ALL STRUCTURAL MATERIALS SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS SECTION 657, EXCEPT SQUARE TUBULAR SUPPORTS WHICH SHALL BE AS NOTED BELOW.



"ONE WAY", "DO NOT ENTER"
SIGN INSTALLATION

TUBULAR SUPPORTS

TUBULAR SUPPORTS SHALL BE FABRICATED FROM COLD ROLLED STEEL CONFORMING TO C-1010. THE CROSS SECTION OF THE POST SHALL BE A SQUARE TUBE FORMED OF 2.66mm STEEL ROLLED TO SIZE AND WELDED IN THE CORNER. THE MEMBERS SHALL BE STRAIGHT AND HAVE A SMOOTH UNIFORM FINISH. NOMINAL SIZE OF TUBE SHALL BE 44.5mmx44.5mm. TUBES SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 653M COATING DESIGNATION G90.

CADIUM PLATED BOLTS SHALL MEET THE REQUIREMENTS OF ASTM B 766, CLASS 8, TYPE 2.

BRACKETS (T, L, AND SQUARE) SHALL BE FABRICATED FROM STEEL CONFORMING TO C-1010. GALVANIZATION SHALL BE IN ACCORDANCE WITH ASTM A 653M COATING DESIGNATION G90.

PAYMENT FOR TUBULAR SUPPORTS SHALL BE INCIDENTAL TO THE AMOUNT BID FOR CHANNEL POSTS.

- △ DELETED B-88
- △ DELETED GALV. BOLT, GAVE CADMIUM PLATED SPEC.
- △ DELETED GALV. BOLT, GAVE CADMIUM PLATED SPEC.

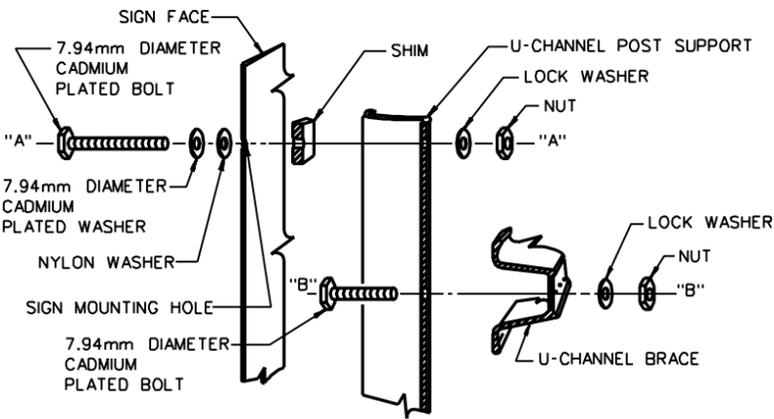
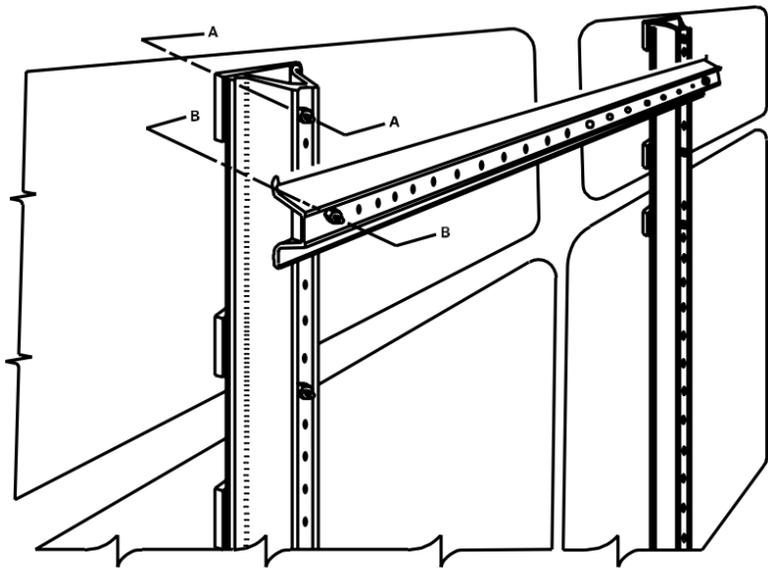
**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
"ONE WAY" SIGN
SUPPORT DETAILS**

PREPARED: 04/00/73

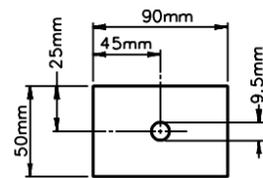
REVISIONS
△ 11-15-76
△ 09-21-93
△ 05-13-94

PUBLIC ROADS DIV.	STATE DET. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

FRAMING (BRACING) FOR ROUTE MARKER ASSEMBLIES AND BACK-TO-BACK MOUNTINGS

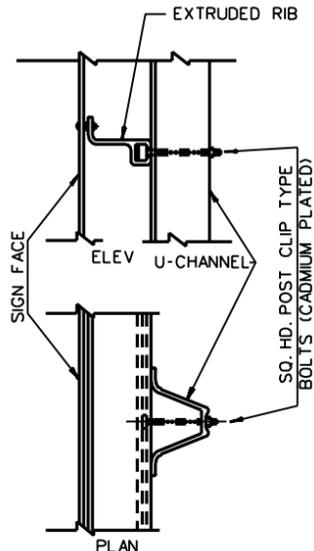
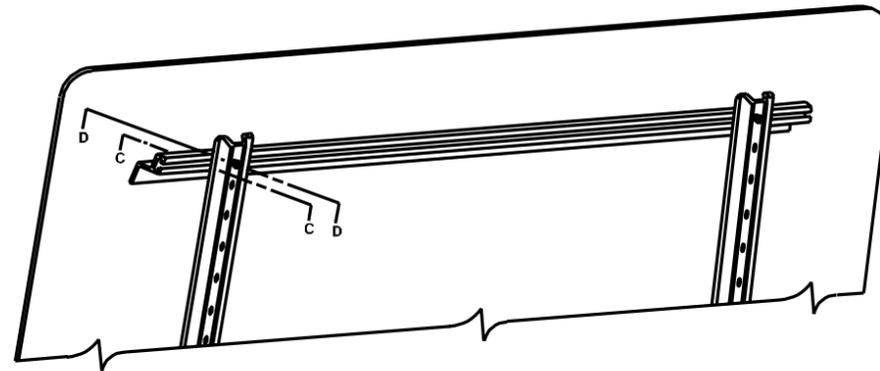


88.9mmx50.8mmx3.175mm ALUMINUM ALLOY (6061-T6) SHIM. SHIMS TO BE USED ON ALL SIGNS ERECTED ON "U" CHANNEL POSTS AT EACH SIGN-HOLDING BOLT.



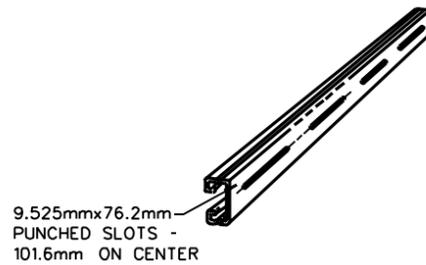
SHIM DETAIL

FRAMING (BRACING) FOR ALL OTHER SIGNING



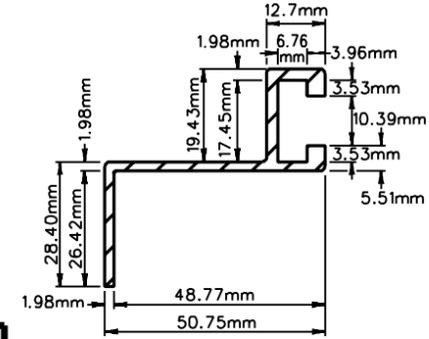
TYPICAL U-CHANNEL AND RIB ASSEMBLY

CHANNEL MATERIAL
1.52mm STRIP STEEL
HOT-DIPPED GALVANIZED CONFORMING TO A.S.T.M. SPEC. NO. A-153

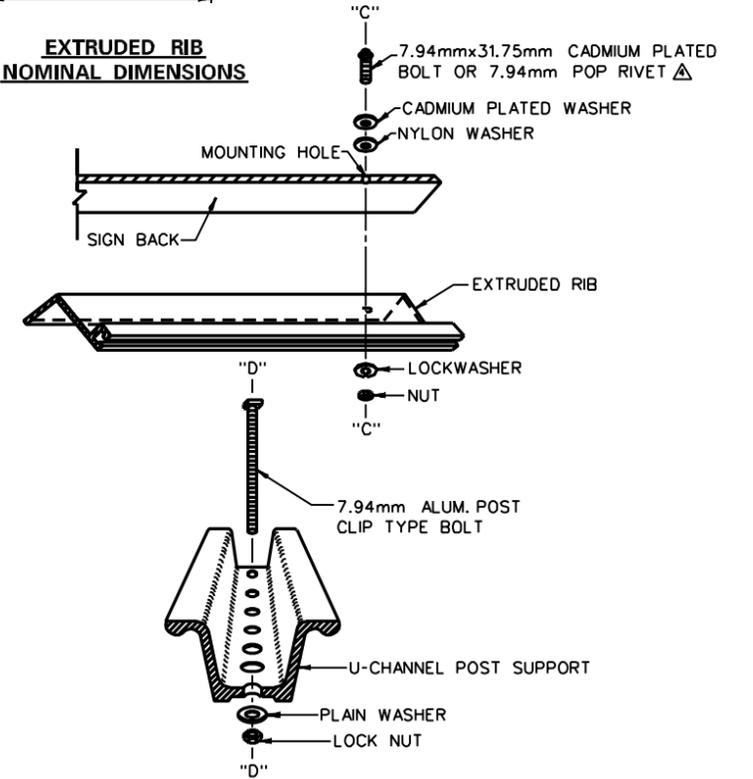
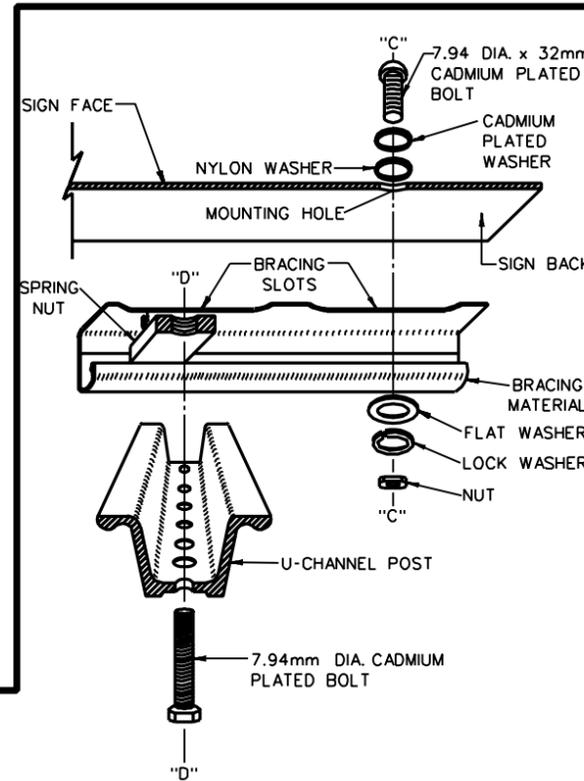


ALTERNATE 1

NOTE:
CADMIUM PLATED BOLTS SHALL MEET THE REQUIREMENTS OF ASTM B766, CLASS 8, TYPE 2.



EXTRUDED RIB NOMINAL DIMENSIONS



ALTERNATE 2

NOTE: THE U-CHANNEL SUPPORT MAY ALSO BE ATTACHED TO THE EXTRUDED RIB BY USE OF POST CLIPS AND POST CLIP BOLTS AS DETAILED ON TE7-1.

- ▲ ADDITION OF ALTERNATE SIGN BRACING
- ▲ ADDITION OF EXTRUDED RIB
- ▲ ADDITION OF POP RIVET, DELETION OF SPACING NUT
- ▲ CHANGED BOLT, WASHER AND NUT FOR ALT. 2
- ▲ ADDED CADMIUM PLATED BOLT SPEC
- ▲ ADDED METRIC

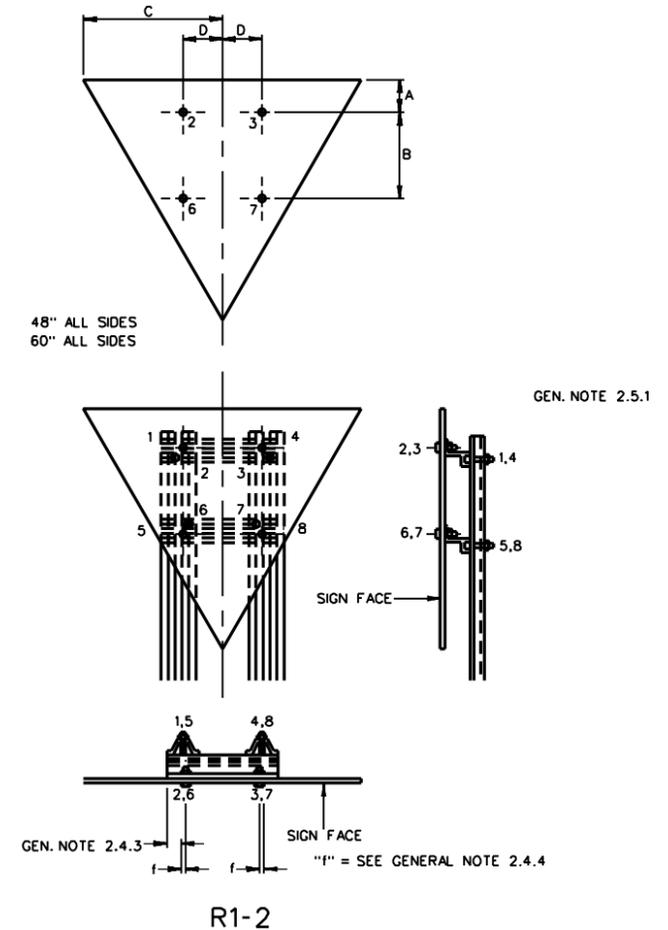
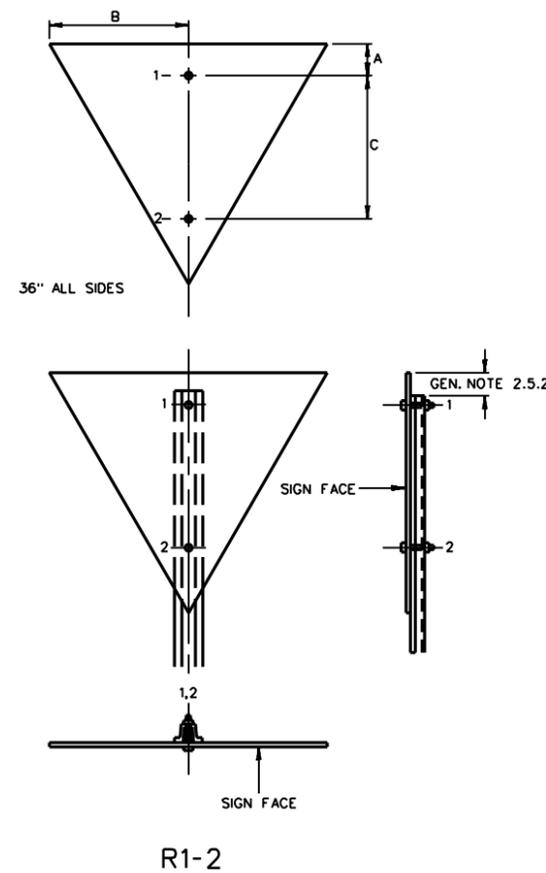
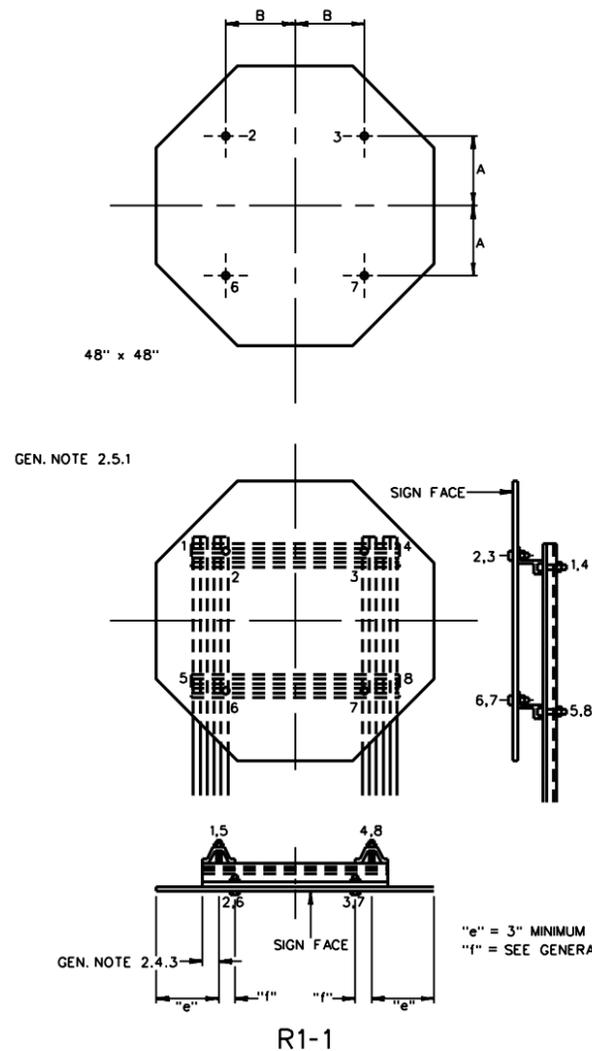
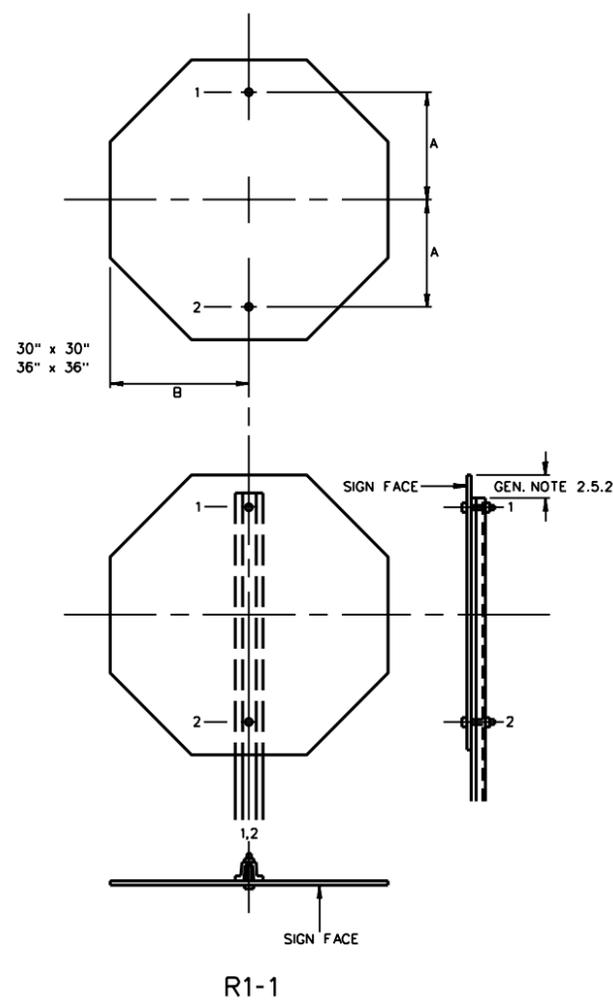
**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
SIGN ASSEMBLY
BOLTING DETAILS**

PREPARED: 10/01/69

REVISIONS
▲ 12-09-69
▲ 05-01-70
▲ 12-13-73
▲ 10-23-75
▲ 06-01-76
▲ 10-21-76
▲ 12-18-87
▲ 09-21-93
▲ 05-12-94

STANDARD SHEET TP-A

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.V.	04	U331-705-0.00	STP-0705 (003)EQ		MONONGALIA		



1. PUNCHING DETAILS

- 1.1 THE SPACING OF THE PUNCHED HOLES WILL BE IN ACCORDANCE WITH THE ACCOMPANYING TABLE AND DETAILED DRAWINGS.
- 1.2 ALL PUNCHED HOLES IN THE SIGNS SHALL BE 5/16" DIAMETER, UNLESS OTHERWISE SPECIFIED.

2. MOUNTING DETAILS

- 2.1 SIGNS IN THE SHAPE OF AN OCTAGON OR EQUILATERAL TRIANGLE WILL BE MOUNTED IN ACCORDANCE WITH THE ACCOMPANYING DETAILED DRAWINGS AND TP3-1. THE ASSOCIATED BOLTS, NUTS, WASHERS AND SHIMS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAIL TP-A: SIGN ASSEMBLY BOLTING DETAILS.
- 2.2 THE MOUNTINGS SHOWN FOR THESE SHAPED SIGNS ARE FOR SIGN ASSEMBLIES CONSISTING OF ONLY ONE SIGN.
- 2.3 ALL BOLTS, NUTS AND WASHERS USED TO MOUNT THE SIGN AND SIGN ASSEMBLY WILL BE 5/16" DIAMETER.
- 2.4 BRACING ON SIGNS SHOWN WILL CONSIST OF EXTRUDED RIB AS DETAILED ON TP-A.
 - 2.4.1 ON ALL BRACED SIGNS, THE WEB OF THE BRACING SHALL BE IN CONTACT WITH THE BACK OF THE SIGN.
 - 2.4.2 ON ALL BRACED SIGNS, THE FLANGE OF THE BRACING SHALL BE IN CONTACT WITH THE FLANGE OF THE POST SUPPORT.

- 2.4.3 ON ALL BRACED SIGNS, THE END OF THE OVERHANGING LENGTH OF THE BRACE SHALL BE AT LEAST 1 3/4" FROM THE CENTERLINE OF THE POST SUPPORT, BUT NO CLOSER THAN 1" TO THE EDGE OF THE SIGN. THE TWO OVERHANGING SECTIONS OF EACH BRACE SHALL BE EQUAL IN LENGTH.
- 2.4.4 ON ALL BRACED SIGNS, THE CENTERLINE OF THE POST SHALL BE WITHIN 3" (ON EITHER SIDE) OF THE CENTERLINE OF THE SIGN HOLE.

2.5 POST SUPPORT

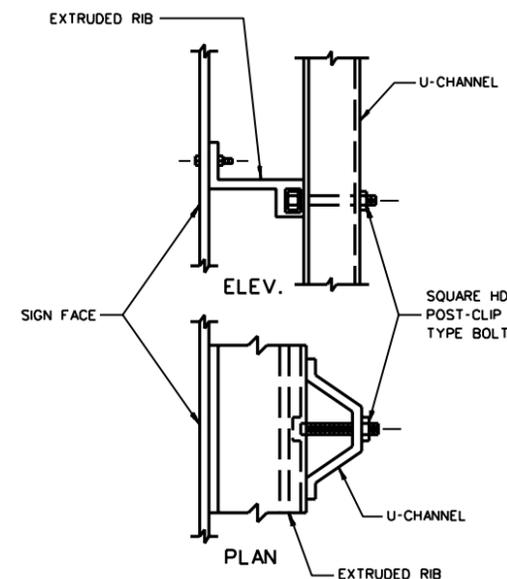
- 2.5.1 THE TOP OF THE POST SUPPORT SHALL NOT EXTEND BEYOND THE EDGE OF THE SIGN.
- 2.5.2 THE TOP OF THE POST SUPPORT SHALL EXTEND 2" OR LESS FROM THE EDGE OF THE SIGN, BUT NOT BEYOND ANY EDGE OF THE SIGN.

- 3. CORNER RADIUS FOR SIGN BLANK MATERIAL SHALL BE 1.5" (EXCEPT R1-1 WHICH WILL HAVE NO RADIUS).

"e" = 3" MINIMUM
"f" = SEE GENERAL NOTE 2.4.4

SIGN SHAPE	SIZE		DIMENSION "A"	DIMENSION "B"	DIMENSION "C"	DIMENSION "D"
	HEIGHT	WIDTH				
OCTAGON (R1-1)	30"	30"	12"	15"	—	—
	36"	36"	16"	18"	—	—
	48"	48"	15"	15"	—	—
EQUILATERAL TRIANGLE (R1-2)	36" ALL SIDES		2"	18"	24"	—
	48" ALL SIDES		3"	21"	24"	7 1/2"
	60" ALL SIDES		6"	24"	30"	9"

△ ADDITION OF EXTRUDED RIB
△ ADDED TP3-1 REFERENCE



TYPICAL U-CHANNEL AND RIB ASSEMBLY

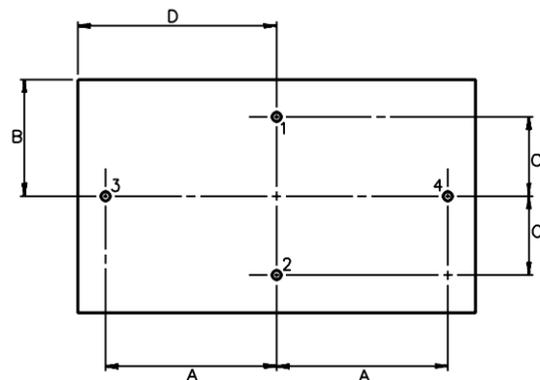
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
PUNCHING AND MOUNTING FOR
R1-1 AND R1-2 SIGNS

PREPARED: 10/01/69

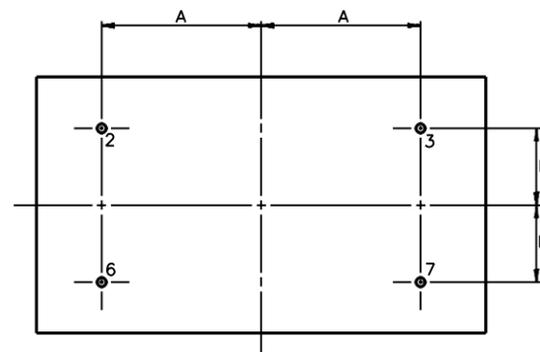
REVISIONS
△ 05-01-70
△ 12-00-73
06-01-76
△ 09-13-93

STANDARD SHEET TP1-1

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS

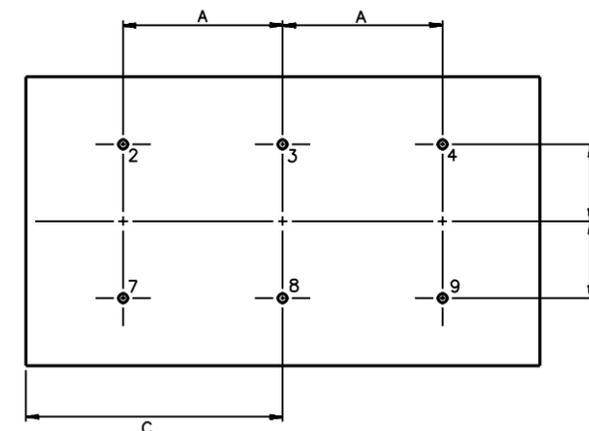


LESS THAN 42" WIDTH



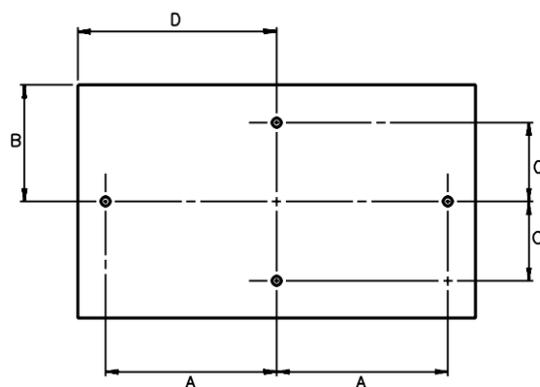
42" - 72" WIDTHS *

* EXCLUDING: (a) SIGNS WITH WIDTHS OF 42" - 48" AND HEIGHT OF 9".
(b) "M" SERIES SIGNS WITH 45" WIDTH.



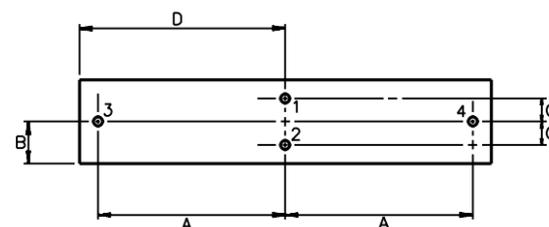
MORE THAN 72" WIDTH

PUNCHING DETAILS FOR HORIZONTAL RECTANGULAR SIGNS



"M" SERIES 45" WIDTHS ONLY

SINGLE POST MOUNT



D16-1 42" - 48" WIDTHS ONLY

NOTES:

1. PUNCHING DETAILS

- 1.1 THE SPACING OF THE PUNCHED HOLES WILL BE IN ACCORDANCE WITH THE SIGN SIZE TABLE AND ACCOMPANYING DETAIL DRAWINGS.
- 1.2 ALL HOLES WILL BE $\frac{3}{8}$ " DIAMETER, UNLESS OTHERWISE SPECIFIED.
- 1.3 ALL HORIZONTAL RECTANGLES DESIGNATED AS D16-1 SIGNS AND HAVING WIDTHS OF 42" OR 48" SHALL BE PUNCHED IN ACCORDANCE WITH THE SIGN SIZE TABLE AND ACCOMPANYING DETAIL DRAWING DESIGNATED "D16-1".
- 1.4 ALL HORIZONTAL RECTANGLES DESIGNATED AS A "M" SERIES SIGN WITH A WIDTH OF 45" SHALL BE PUNCHED IN ACCORDANCE WITH THE SIGN SIZE TABLE AND ACCOMPANYING DETAIL DRAWING.

2. CORNER RADIUS FOR SIGN BLANK MATERIAL SHALL BE 1.5".

SIGN SHAPE	SIGN SIZE		DIMENSION			
	HEIGHT	WIDTH	A	B	C	D
* HORIZONTAL RECTANGLE	6" OR OVER BUT UNDER 36"	LESS THAN 42"	WIDTH - 3" 2	HEIGHT 2	HEIGHT - 3" 2	WIDTH 2
	6" OR OVER BUT UNDER 18"	42"-72"	WIDTH - 6" 2	HEIGHT - 3" 2	---	---
	18" OR OVER BUT UNDER 30"		WIDTH - 6" 2	HEIGHT - 6" 2	---	---
	30" OR MORE		WIDTH - 12" 2	HEIGHT - 12" 2	---	---
	UNDER 30"	MORE THAN 72"	WIDTH - 24" 2	HEIGHT - 6" 2	WIDTH 2	---
	30" OR MORE		WIDTH - 24" 2	HEIGHT - 12" 2	WIDTH 2	---

* EXCLUDING: (a) D16-1 SIGNS WITH WIDTHS OF 42" - 48".
(b) "M" SERIES SIGNS WITH 45" WIDTH.

D16-1	9"	42" - 48"	WIDTH - 3" 2	HEIGHT 2	HEIGHT - 3" 2	WIDTH 2
"M" SERIES	36"	45"	WIDTH - 4" 2	HEIGHT 2	HEIGHT - 4" 2	WIDTH 2

△ CHANGED 9" TO 6"

WEST VIRGINIA DIVISION OF HIGHWAYS

STANDARD DETAIL

PUNCHING DETAILS FOR

HORIZONTAL RECTANGULAR SIGNS

PREPARED: 10/01/69

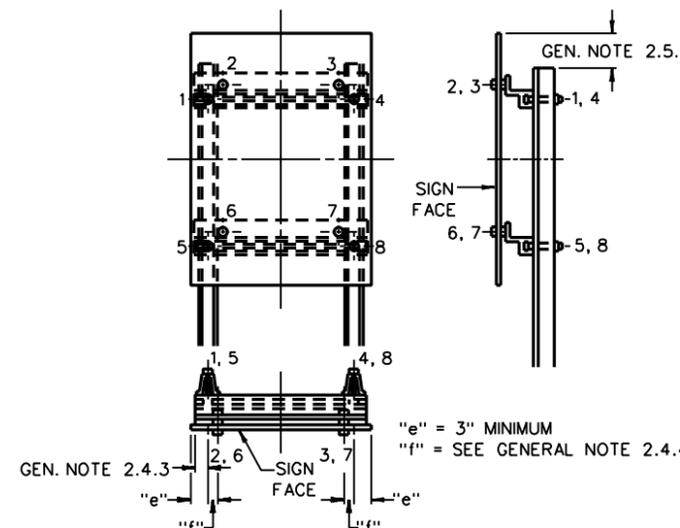
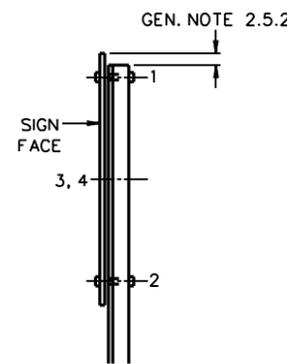
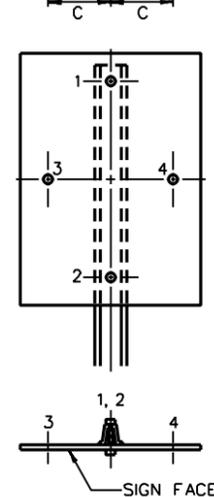
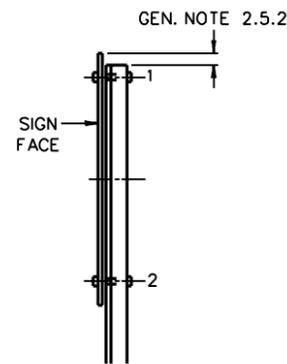
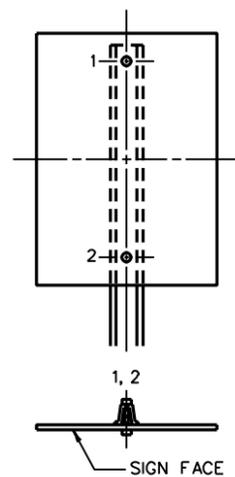
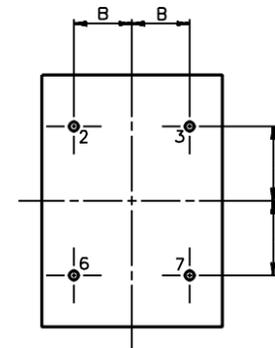
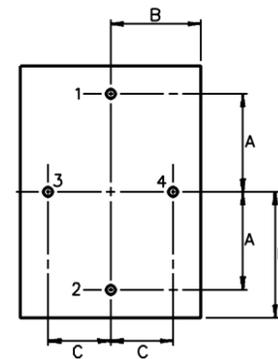
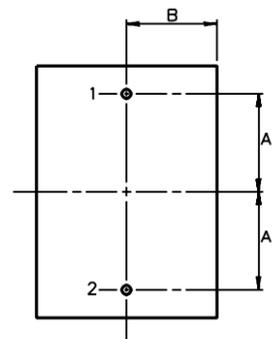
REVISIONS
05-01-70
△ 11-03-76

STANDARD SHEET TP1-3

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS

GENERAL NOTES

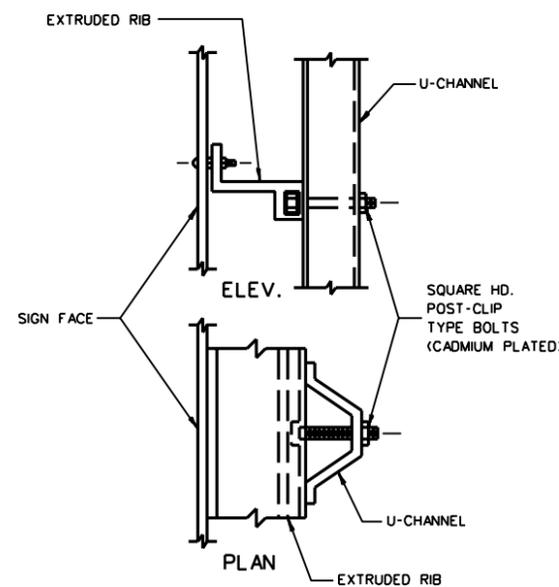
- PUNCHING DETAILS
 - THE SPACING OF THE PUNCHED HOLES WILL BE IN ACCORDANCE WITH THE ACCOMPANYING TABLE AND DETAILED DRAWINGS.
 - ALL PUNCHED HOLES IN THE SIGNS SHALL BE $\frac{3}{8}$ " DIAMETER, UNLESS OTHERWISE SPECIFIED.
- MOUNTING DETAILS
 - SIGNS IN THE SHAPE OF VERTICAL RECTANGLES WILL BE MOUNTED IN ACCORDANCE WITH THE ACCOMPANYING DETAILED DRAWINGS AND TP3-1. THE ASSOCIATED BOLTS, NUTS, WASHERS AND SHIMS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAIL TP-A; SIGN ASSEMBLY BOLTING DETAILS.
 - THE MOUNTING SHOWN FOR THESE SHAPED SIGNS ARE FOR SIGN ASSEMBLIES CONSISTING OF ONLY ONE SIGN.
 - ALL BOLTS, NUTS AND WASHERS USED TO MOUNT THE SIGN AND SIGN ASSEMBLY WILL BE $\frac{5}{16}$ " DIAMETER.
 - BRACING ON SIGNS SHOWN WILL CONSIST OF EXTRUDED RIB AS DETAILED ON TP-A.
 - ON ALL BRACED SIGNS, THE WEB OF THE BRACING SHALL BE IN CONTACT WITH THE BACK OF THE SIGN.
 - ON ALL BRACED SIGNS, THE FLANGE OF THE BRACING SHALL BE IN CONTACT WITH THE FLANGE OF THE POST SUPPORT.
 - ON ALL BRACED SIGNS, THE END OF THE OVERHANGING LENGTH OF THE BRACE SHALL BE AT LEAST 1-3/4" FROM THE CENTERLINE OF THE POST SUPPORT, BUT NO CLOSER THAN 1" TO THE EDGE OF THE SIGN. THE TWO OVERHANGING SECTIONS OF EACH BRACE SHALL BE EQUAL IN LENGTH.
 - ON ALL BRACED SIGNS, THE CENTERLINE OF THE POST SHALL BE WITHIN 3" (ON EITHER SIDE) OF THE CENTERLINE OF THE SIGN HOLE.
- POST SUPPORT
 - THE TOP OF THE POST SUPPORT SHALL NOT EXTEND BEYOND THE EDGE OF THE SIGN.
 - THE TOP OF THE POST SUPPORT SHALL EXTEND 2" OR LESS FROM THE EDGE OF THE SIGN, BUT NOT BEYOND ANY EDGE OF THE SIGN.
- CORNER RADIUS FOR SIGN BLANK MATERIAL SHALL BE 1.5".



LESS THAN 9" WIDTH

9" OR OVER, BUT UNDER 36" WIDTH

36" OR GREATER WIDTH



TYPICAL U-CHANNEL AND RIB ASSEMBLY

SIGN SHAPE	SIGN SIZE		DIMENSION			
	HEIGHT	WIDTH	A	B	C	D
VERTICAL RECTANGLE	GREATER THAN WIDTH	LESS THAN 9"	HEIGHT-1" 2	WIDTH 2	—	—
	LESS THAN 54"	9" OR OVER BUT UNDER 24"	HEIGHT-3" 2	WIDTH 2	WIDTH-3" 2	HEIGHT 2
	24" OR OVER BUT UNDER 36"	24" OR OVER BUT UNDER 36"	HEIGHT-6" 2	WIDTH 2	WIDTH-6" 2	HEIGHT 2
	42" TO 78"	36" TO 66"	HEIGHT-12" 2	WIDTH-12" 2	—	—
GREATER THAN WIDTH	MORE THAN 66"	HEIGHT-24" 2	WIDTH-24" 2	—	—	

- △ ADDITION OF EXTRUDED RIB
- △ ADDED TP3-1 REFERENCE

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
PUNCHING AND MOUNTING FOR
VERTICAL RECTANGULAR SIGNS

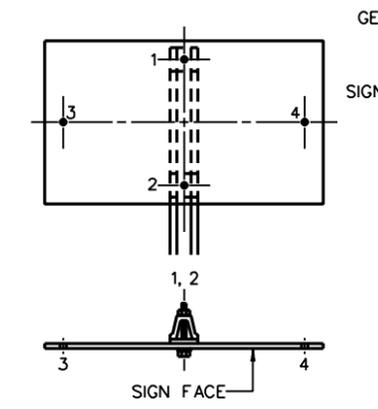
PREPARED: 10/01/69

REVISIONS
△ 05-01-70
△ 12-13-73
△ 06-01-76
△ 09-13-93

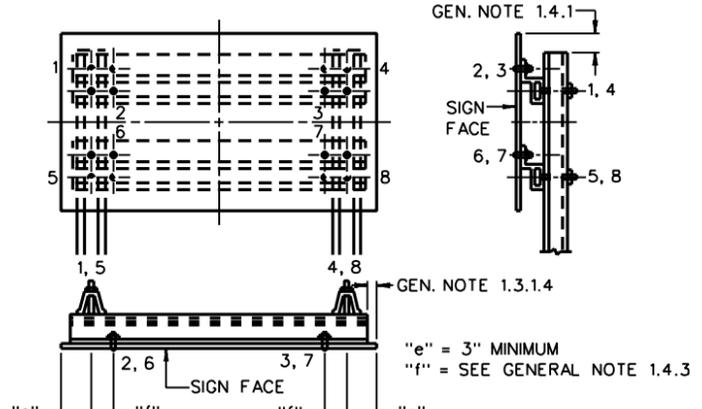
STANDARD SHEET TP1-4

MOUNTING DETAILS FOR SINGLE-MOUNTED HORIZONTAL RECTANGULAR SIGNS *

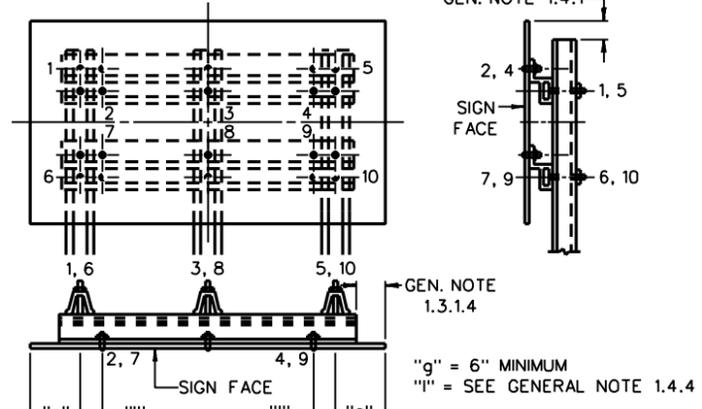
* EXCEPT D16-1 SIGNS (42" - 48" WIDTHS ONLY)



LESS THAN 42" WIDTH



42" - 72" WIDTHS



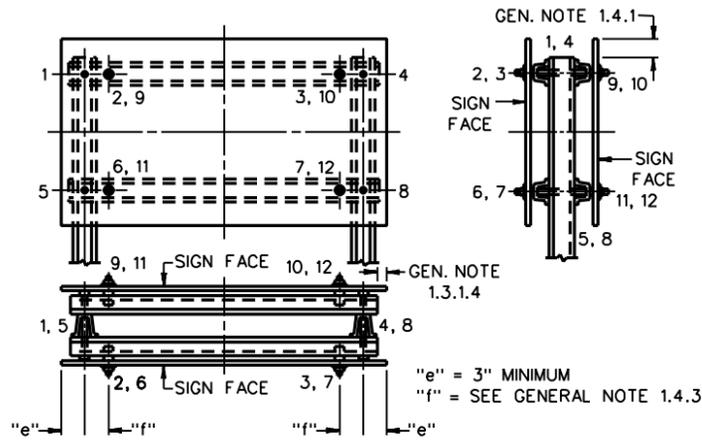
MORE THAN 72" WIDTH

GENERAL NOTES

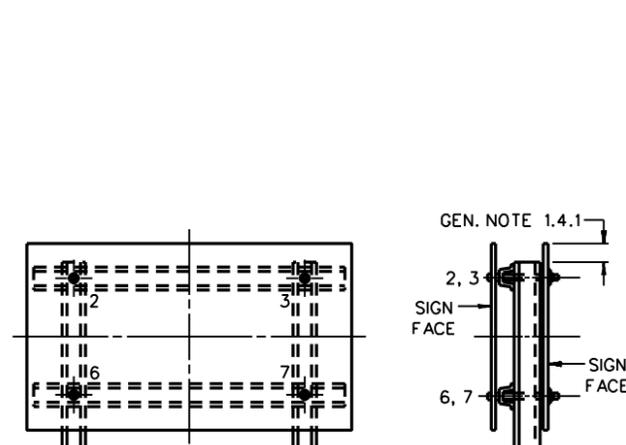
1. MOUNTING DETAILS
 - 1.1 HORIZONTAL RECTANGULAR SHAPED SIGNS WILL BE MOUNTED IN ACCORDANCE WITH THE ACCOMPANYING DETAIL DRAWINGS AND TP3-1. THE ASSOCIATED BOLTS, NUTS, WASHERS AND SHIMS FOR SINGLE-MOUNTED SIGN ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAIL TP-A: SIGN ASSEMBLY BOLTING DETAILS.
 - 1.2 SIGN ASSEMBLY
 - 1.2.1 ALL MOUNTINGS SHOWN ARE FOR ASSEMBLIES CONSISTING OF SINGLE-MOUNTED OR BACK-TO-BACK MOUNTED SIGNS.
 - 1.2.2 BACK-TO-BACK MOUNTINGS FOR ALL ASSEMBLIES (EXCEPT D16-1 SIGNS WITH 42" - 48" WIDTHS) AS SHOWN IN DETAIL "A" IS RECOMMENDED. HOWEVER, DETAIL "B" AND/OR "C" MAY BE USED.
 - 1.2.3 MOUNTING DETAILS FOR "M" SERIES SIGNS WITH 45" WIDTH ARE SHOWN ON STANDARD DETAIL SHEET TP4-1A, B, C.
 - 1.2.4 ALL BOLTS, NUTS AND WASHERS USED TO MOUNT THE SIGN AND SIGN ASSEMBLIES WILL BE 3/8" DIAMETER.
 - 1.3 BRACING
 - 1.3.1 SINGLE-MOUNTED AND BACK-TO-BACK MOUNTED HORIZONTAL RECTANGULAR SIGNS, EXCEPT D16-1 SIGNS WITH 42" AND 48" WIDTHS.
 - 1.3.1.1 BRACING ON SIGNS SHOWN WILL CONSIST OF EXTRUDED RIB AS DETAILED ON TP-A EXCEPT BACK-TO-BACK MOUNTINGS WILL CONSIST OF 2LB. CHANNEL POST.
 - 1.3.1.2 ON ALL BRACED SIGNS THE WEB OF THE BRACING SHALL BE IN CONTACT WITH THE BACK OF THE SIGN.
 - 1.3.1.3 ON ALL BRACED SIGNS THE FLANGE OF THE BRACING SHALL BE IN CONTACT WITH THE POST SUPPORT.
 - 1.3.1.4 ON ALL BRACED SIGNS THE END OF THE OVERHANGING LENGTH OF THE BRACE SHALL BE AT LEAST 1-1/4" FROM THE CENTERLINE OF THE POST SUPPORT, BUT NO CLOSER THAN 1" TO THE EDGE OF THE SIGN. THE TWO OVERHANGING SECTIONS OF EACH BRACE SHALL BE EQUAL IN LENGTH.
 - 1.3.2 D16-1 SIGNS WITH 42" - 48" WIDTHS.
 - 1.3.2.1 STRAP-BRACING FOR SINGLE-MOUNTED 42" WIDTH D16-1 SIGN ASSEMBLIES SHALL BE A GALVANIZED STEEL BRACE 1/4" x 1" x 40-1/2". HOLES IN THE STRAP-BRACING SHALL BE 3/8" DIAMETER AND CAN EITHER BE PUNCHED AS SHOWN OR BE PUNCHED AT 1" INTERVALS.
 - 1.3.2.2 STRAP-BRACING FOR SINGLE-MOUNTED 48" WIDTH D16-1 SIGN ASSEMBLIES SHALL BE A GALVANIZED STEEL BRACE 1/4" x 1" x 40-1/2". HOLES IN THE STRAP-BRACING SHALL BE 3/8" DIAMETER AND CAN BE PUNCHED AS SHOWN OR BE PUNCHED AT 1" INTERVALS.
 - 1.3.2.3 ON ALL SINGLE-MOUNTED D16-1 (42" - 48" WIDTH) SIGN ASSEMBLIES THE ENDS OF THE STRAP-BRACING SHALL EXTEND 1" OR LESS FROM THE EDGE OF THE SIGN, BUT NOT BEYOND ANY EDGE OF THE SIGN.
- 1.4 POST SUPPORT
 - 1.4.1 THE TOP OF THE POST SUPPORT SHALL NOT EXTEND BEYOND THE EDGE OF THE SIGN.
 - 1.4.2 THE TOP OF THE POST SUPPORT SHALL EXTEND 2" OR LESS FROM THE EDGE OF THE SIGN, BUT NOT BEYOND ANY EDGE OF THE SIGN.
 - 1.4.3 ON ALL BRACED SIGNS, THE CENTERLINE OF THE POST SHALL BE WITHIN 3" (ON EITHER SIDE) OF THE CENTERLINE OF THE SIGN HOLE.
 - 1.4.4 ON ALL BRACED SIGNS, THE CENTERLINE OF THE POST SHALL BE WITHIN 6" (ON EITHER SIDE) OF THE CENTERLINE OF THE SIGN HOLE.

MOUNTING DETAILS FOR BACK-TO-BACK MOUNTED HORIZONTAL RECTANGULAR SIGNS *

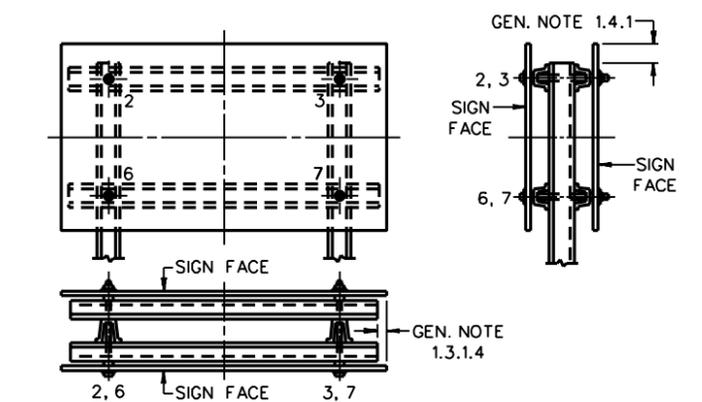
* EXCEPT D16-1 SIGNS (42" - 48" WIDTHS ONLY)



(a)



(b)

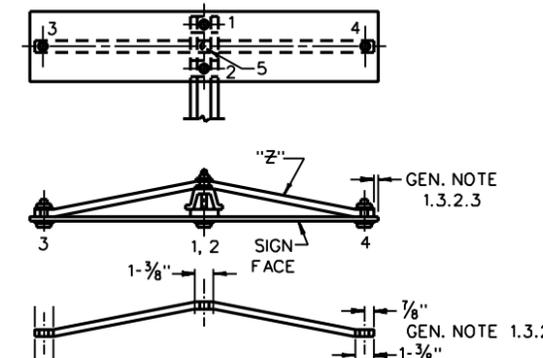


(c)

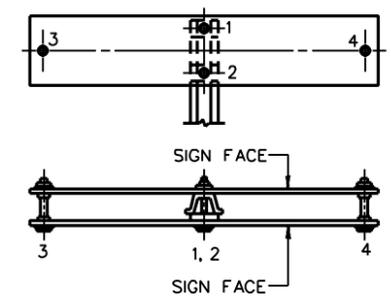
EXCEPTIONS TO STANDARD MOUNTING DETAILS *

* EXCEPT D16-1 SIGNS (42" - 48" WIDTHS ONLY)

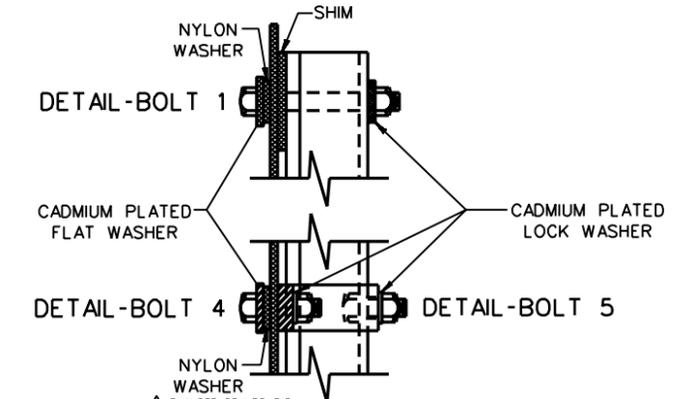
GEN. NOTE 1.4.2



SINGLE-MOUNTING



BACK-TO-BACK MOUNTING



CHANGED D6-1 TO D16-1
ADDED TP3-1 REFERENCE

WEST VIRGINIA DIVISION OF HIGHWAYS

STANDARD DETAIL MOUNTING DETAILS FOR HORIZONTAL RECTANGULAR SIGNS

PREPARED: 10/01/69

REVISIONS
05-10-70
06-10-76
11-03-76
09-13-93

STANDARD SHEET TP1-5

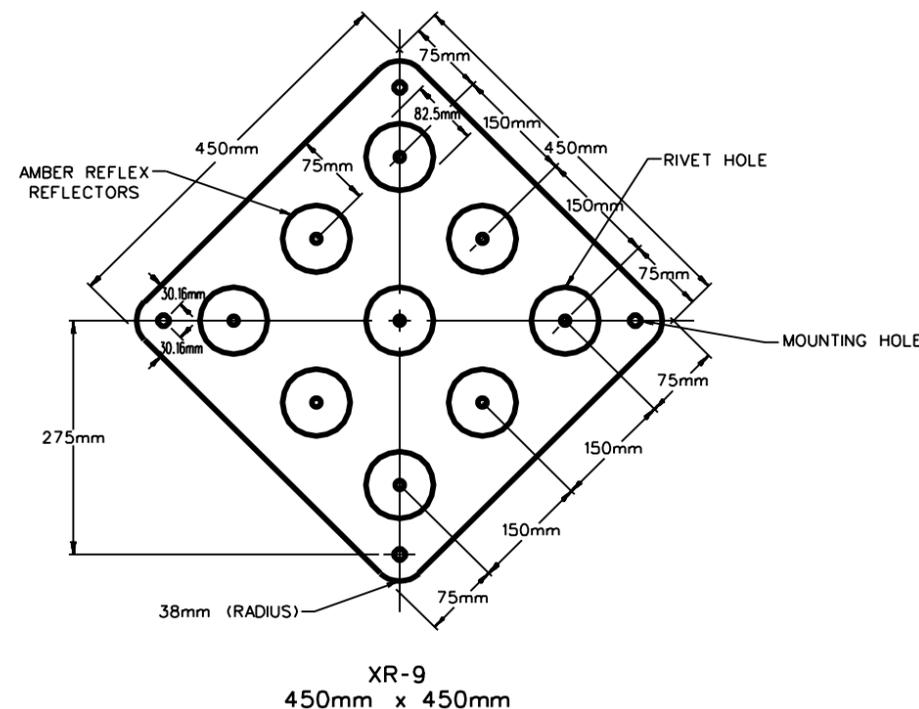
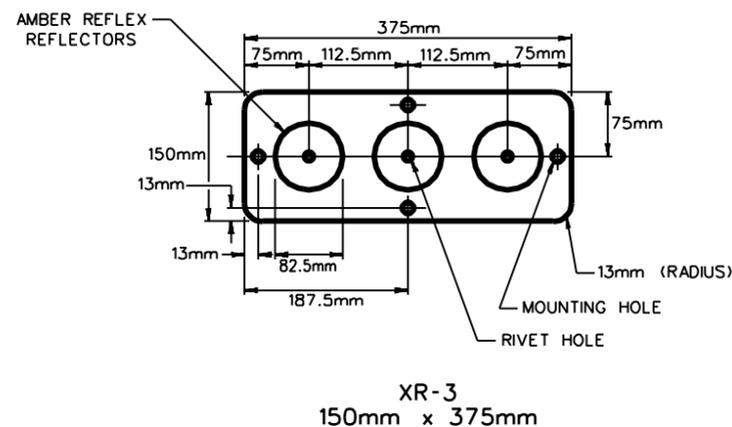
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

PUNCHING DETAILS FOR DELINEATOR MOUNTING PLAQUES

GENERAL NOTES

1. PUNCHING DETAILS

- 1.1 THE SPACING OF THE PUNCHED HOLES WILL BE IN ACCORDANCE WITH THE ACCOMPANYING DETAILED DRAWINGS.
- 1.2 ALL MOUNTING HOLES WILL BE 9.5mm DIAMETER.
- 1.3 ALL RIVET HOLES USED TO MOUNT REFLEX REFLECTORS TO PLAQUE WILL HAVE A DIAMETER NO GREATER THAN 6.4mm.
- 1.4 ALL REFLEX REFLECTORS WILL BE MOUNTED WITH RIVETS.



- △ DELETED FABRICATION SHEETS
- △ ROTATED DETAIL XR-3 90 DEGREES
- △ ADDED METRIC

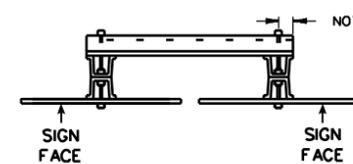
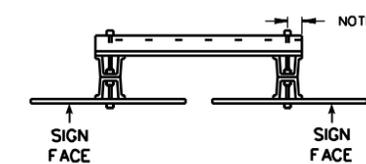
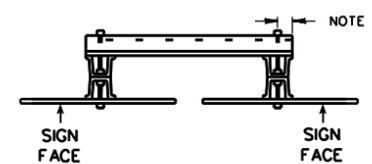
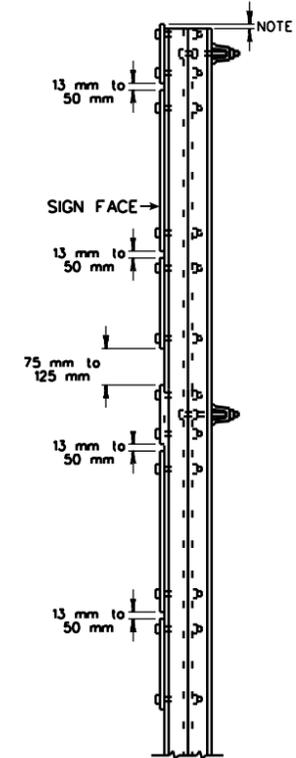
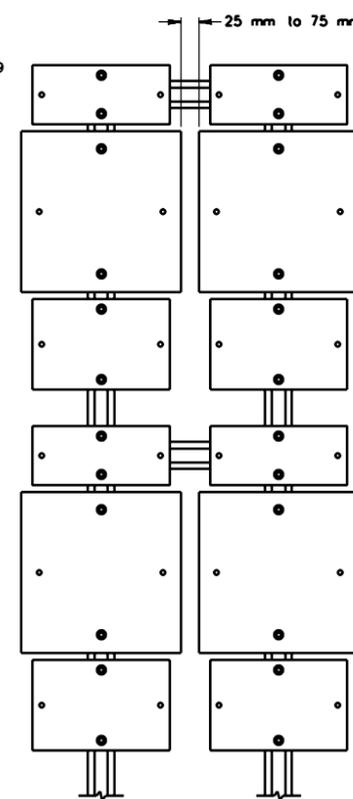
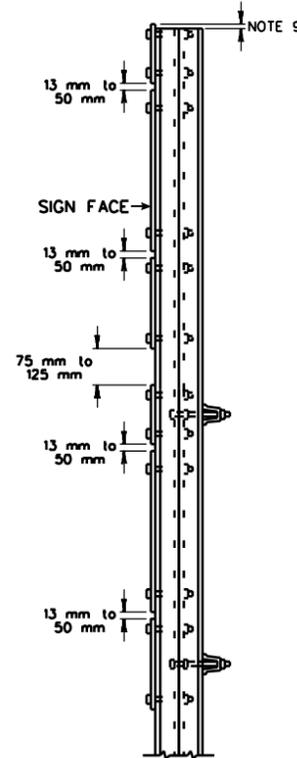
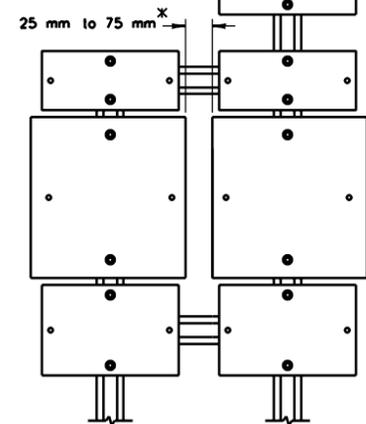
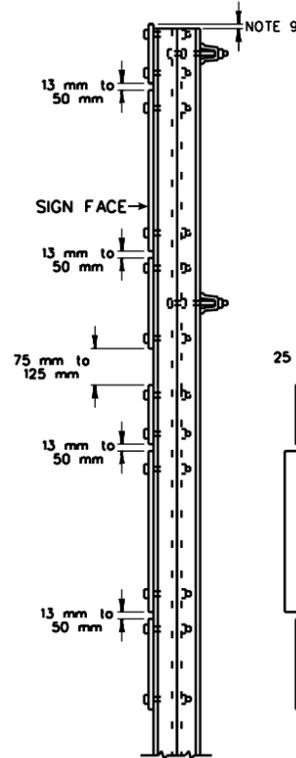
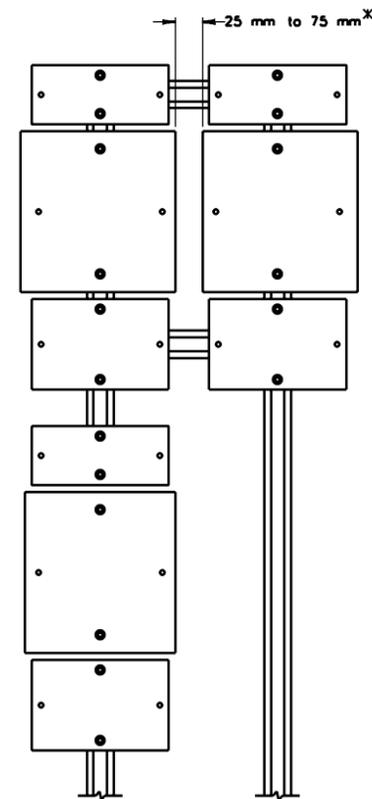
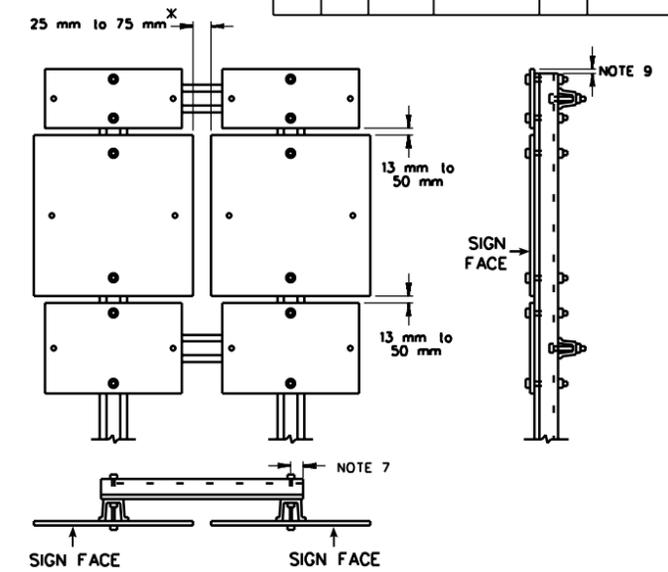
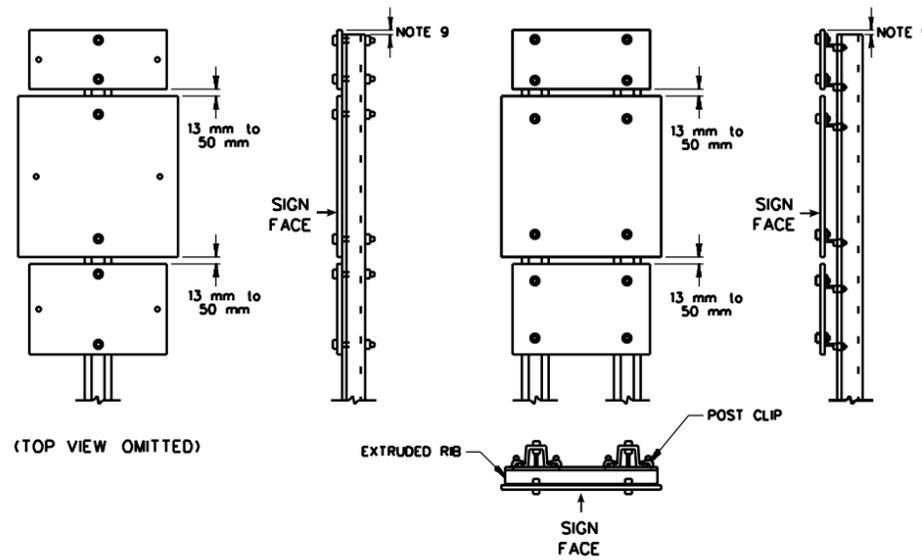
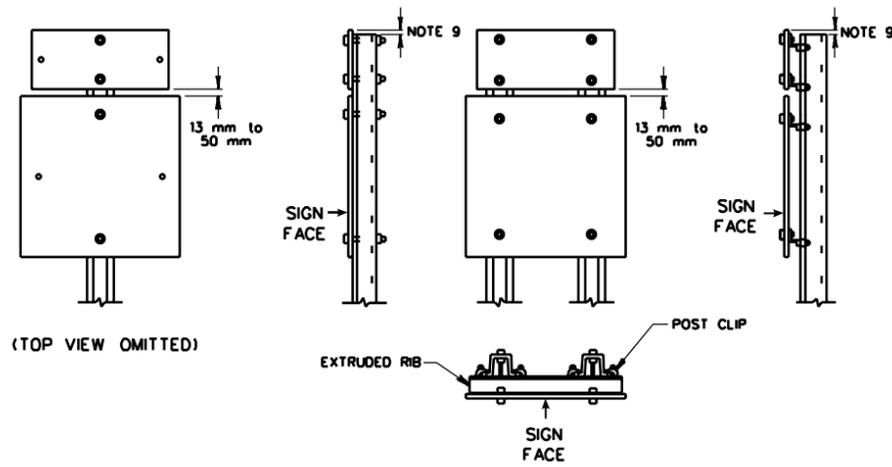
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
PUNCHING FOR XR-3 AND XR-9
DELINEATOR MOUNTING PLAQUES

PREPARED: 10/01/69

REVISIONS
05-01-70
△ 11-03-76
△ 10-26-93
△ 05-06-94

STANDARD SHEET TP2-1

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



GENERAL NOTES

- ALL ROUTE MARKER ASSEMBLIES SHOWN ON THIS SHEET ARE TYPICAL ARRANGEMENTS CONSISTING OF TWO (2) OR MORE SIGNS MOUNTED ON U-CHANNELS.
 - ARRANGEMENTS SHOWN SHOULD BE USED FOR ALL ROUTE MARKER SIGN ASSEMBLIES, EXCEPT WHERE CONDITIONS DO NOT WARRANT. ANY DEVIATIONS TO THE ARRANGEMENTS SHOWN SHALL BE APPROVED BY THE PROJECT ENGINEER PRIOR TO INSTALLATION.
 - ROUTE MARKER ASSEMBLIES SHOWN SHALL BE MOUNTED IN ACCORDANCE WITH THE ACCOMPANYING DETAILED DRAWINGS AND TP3-1. ANY ASSOCIATED HARDWARE NECESSARY SHALL BE AS DETAILED ON TE7-1 AND TP-A.
 - ALL BOLTS, NUTS AND WASHERS USED TO MOUNT THE SIGNS AND SIGN ASSEMBLY WILL BE 7.94 mm DIAMETER.
 - ANY CHANNEL POST BRACING SHALL BE OF A WEIGHT NOT LESS THAN 2.98 kg/m.
 - EXTRUDED RIBS SHALL BE AS DETAILED ON STANDARD DETAIL TP-A.
 - ON ALL ROUTE MARKER ARRANGEMENTS REQUIRING BRACING, THE END OF THE OVERHANGING LENGTH OF THE BRACE SHALL BE AT LEAST 44.5 mm FROM THE CENTERLINE OF THE POST SUPPORT, BUT NO CLOSER THAN 25 mm TO THE EDGE OF THE SIGN. THE TWO OVERHANGING SECTIONS OF EACH BRACE SHALL BE EQUAL IN LENGTH.
 - ON ALL ROUTE MARKER ARRANGEMENTS, THE FLANGE OF THE POST SUPPORT SHALL BE IN CONTACT WITH THE BACK OF THE SIGNS OR EXTRUDED RIB.
 - THE TOP OF THE POST SUPPORT MAY BE 50 mm OR LESS FROM THE EDGE OF THE SIGN, BUT SHALL NOT EXTEND BEYOND ANY EDGE OF THE SIGN.
- * WHEN ROUTE MARKERS OF VARYING WIDTHS ARE USED, THE SPACING SHALL BE BETWEEN THE TWO WIDEST ROUTE MARKERS.

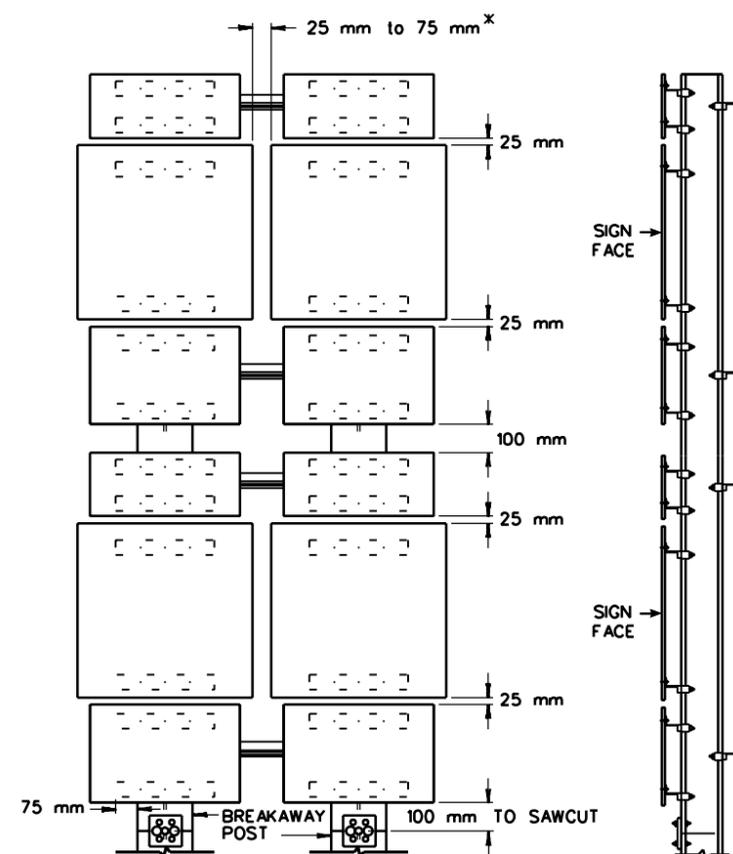
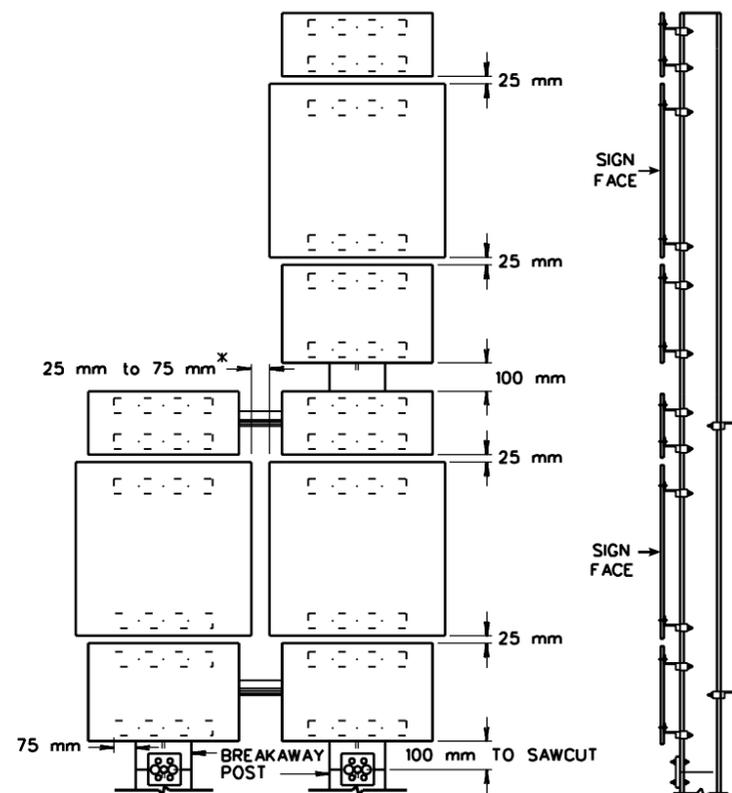
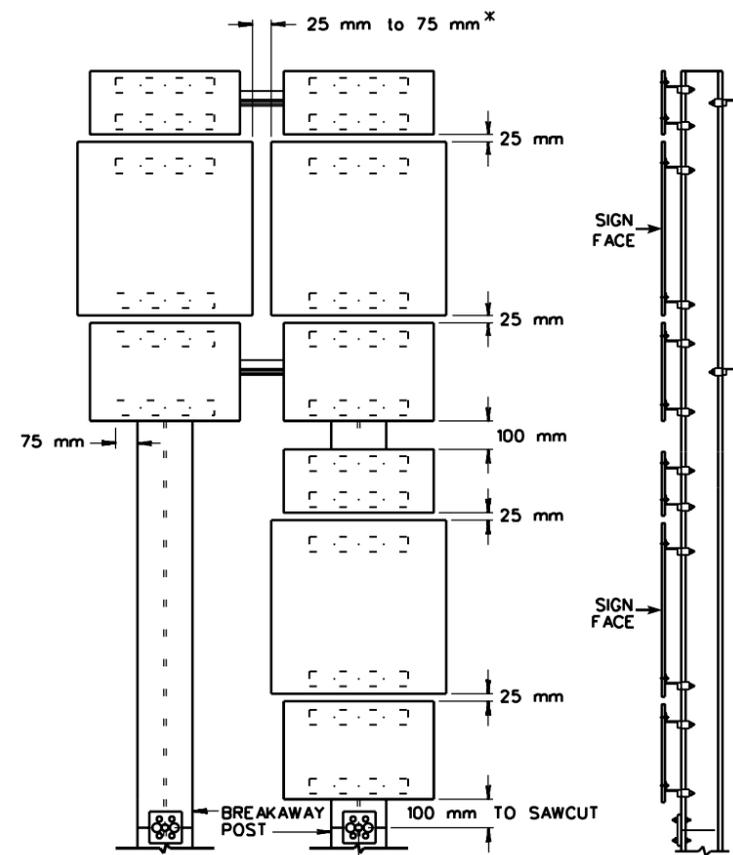
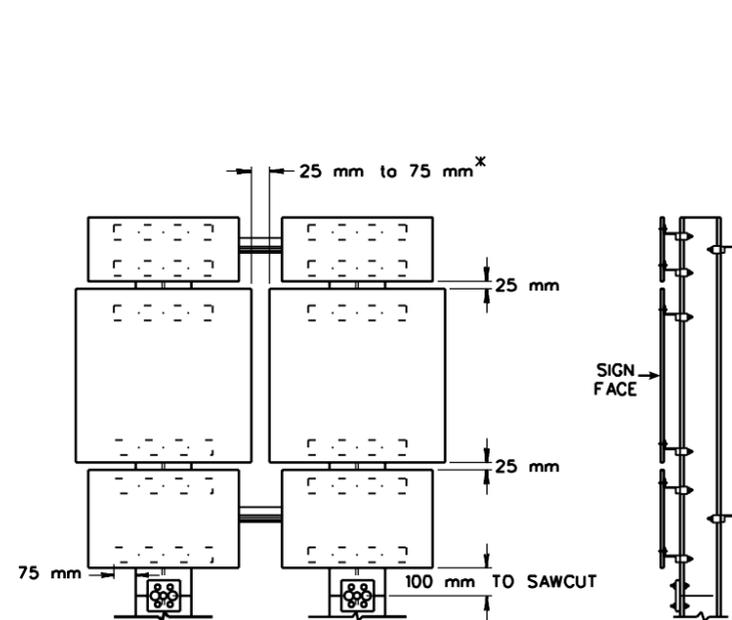
- ▲ ADDED TP3-1 REFERENCE
- ▲ ADDED METRIC
- ▲ REVISED ARRANGEMENTS AND ATTACHMENTS

**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
TYPICAL ROUTE MARKER ASSEMBLY
ARRANGEMENTS AND MOUNTINGS
(U-CHANNEL)**

PREPARED:	REVISIONS
10/01/69	05-01-70
	▲ 09-13-93
	▲ 05-06-94
	▲ 06-26-95

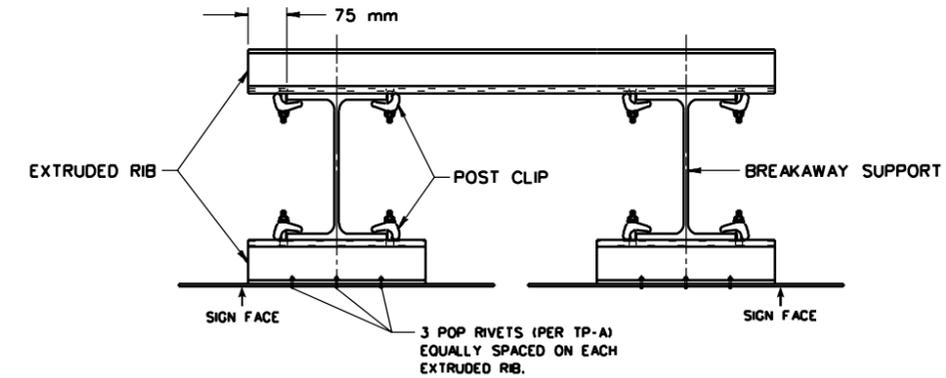
STANDARD SHEET TP4-1A

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



GENERAL NOTES

- ALL ROUTE MARKER ASSEMBLIES SHOWN ON THIS SHEET ARE TYPICAL ARRANGEMENTS CONSISTING OF TWO (2) OR MORE SIGNS MOUNTED ON BREAKAWAY SUPPORTS.
 - ARRANGEMENTS SHOWN SHOULD BE USED FOR ALL ROUTE MARKER SIGN ASSEMBLIES, EXCEPT WHERE CONDITIONS DO NOT WARRANT. ANY DEVIATIONS TO THE ARRANGEMENTS SHOWN SHALL BE APPROVED BY THE PROJECT ENGINEER PRIOR TO INSTALLATION.
 - ROUTE MARKER ASSEMBLIES SHOWN SHALL BE MOUNTED IN ACCORDANCE WITH THE ACCOMPANYING DETAILED DRAWINGS AND TP3-1. ANY ASSOCIATED HARDWARE NECESSARY SHALL BE AS DETAILED ON TE7-1 AND TP-A.
 - BRACING ON ALL SIGN ASSEMBLIES SHOWN SHALL CONSIST OF AN EXTRUDED RIB AS DETAILED ON TP-A. EACH SIGN IN THE ARRANGEMENTS SHOWN SHALL HAVE TWO EXTRUDED RIBS.
 - THE TOP OF THE BREAKAWAY SUPPORT MAY BE 25 mm OR LESS FROM THE EDGE OF THE SIGN, BUT SHALL NOT EXTEND BEYOND ANY EDGE OF THE SIGN.
- * WHEN ROUTE MARKERS OF VARYING WIDTHS ARE USED, THE SPACING SHALL BE BETWEEN THE TWO WIDEST ROUTE MARKERS.



- ▲ ADDED TP3-1 REFERENCE
- ▲ ADDED METRIC
- ▲ REVISED ARRANGEMENTS AND ATTACHMENTS

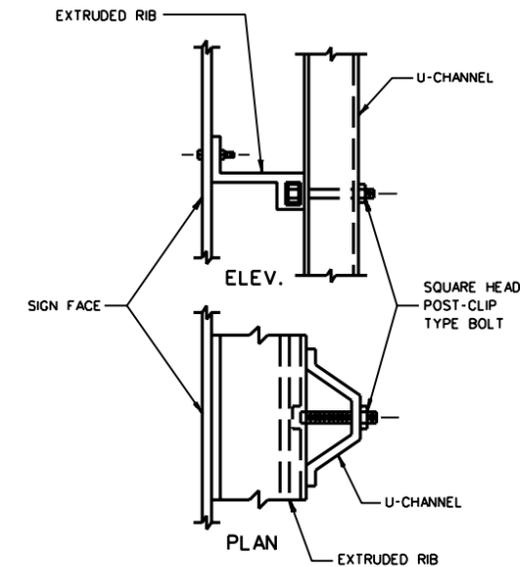
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
TYPICAL ROUTE MARKER ASSEMBLY
ARRANGEMENTS AND MOUNTINGS
(BREAKAWAY)

REVISIONS
05-01-70
▲ 09-13-93
▲ 05-06-94
▲ 10-17-95

STANDARD SHEET TP4-1B

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

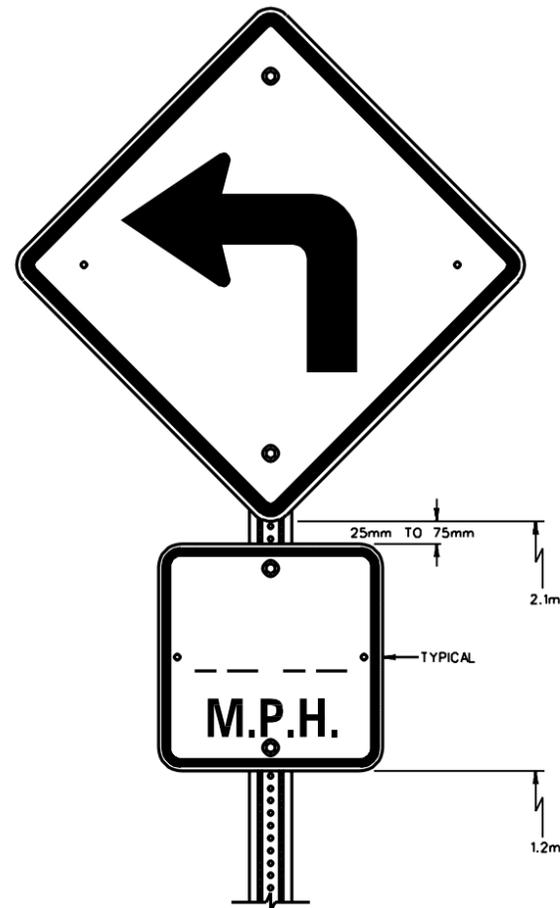
DETAIL "A"



TYPICAL U-CHANNEL AND EXTRUDED RIB ASSEMBLY

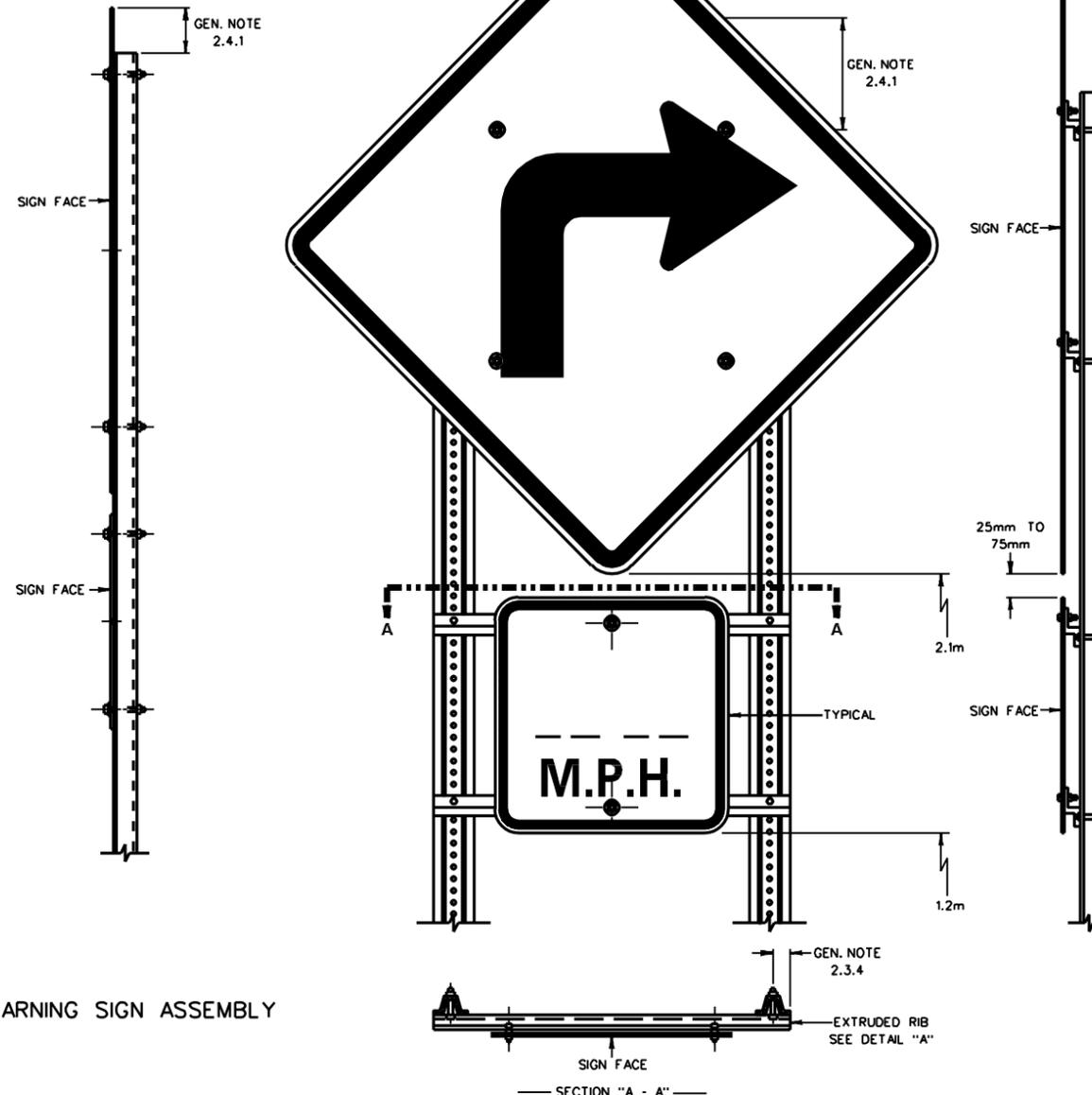
GENERAL NOTES

1. WARNING SIGN ASSEMBLY ARRANGEMENT
 - 1.1 ALL WARNING SIGN ASSEMBLIES SHOWN ON THIS SHEET ARE FOR ASSEMBLIES CONSISTING OF ONLY TWO (2) SIGNS.
 - 1.2 WARNING SIGN ASSEMBLY ARRANGEMENTS SHOWN ON THIS SHEET ARE TYPICAL. THE ARRANGEMENTS SHOWN SHOULD BE USED FOR ALL WARNING SIGN ASSEMBLIES CONSISTING OF TWO (2) SIGNS, EXCEPT WHERE CONDITIONS DO NOT WARRANT. ANY DEVIATIONS TO THE SHOWN ARRANGEMENTS SHALL BE APPROVED BY THE PROJECT ENGINEER PRIOR TO INSTALLATION.
2. WARNING SIGN ASSEMBLY MOUNTING DETAILS
 - 2.1 WARNING SIGN ASSEMBLIES SHOWN SHOULD BE MOUNTED IN ACCORDANCE WITH THE ACCOMPANYING DETAILED DRAWINGS AND TP3-1. THE ASSOCIATED BOLTS, NUTS, WASHERS AND SHIMS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAIL TP-A: SIGN ASSEMBLY BOLTING DETAILS.
 - 2.2 ALL BOLTS, NUTS AND WASHERS USED TO MOUNT THE SIGNS AND SIGN ASSEMBLY WILL BE 7.94mm DIAMETER.
 - 2.3 BRACING ON THE TYPICAL TWO-POST MOUNTING WILL CONSIST OF EXTRUDED RIB AS DETAILED ON TP-A.
 - 2.3.1 ON ALL BRACED SIGNS, THE WEB OF THE BRACING SHALL BE IN CONTACT WITH THE BACK OF THE SIGN.
 - 2.3.2 ON ALL BRACED SIGNS, THE FLANGE OF THE BRACING SHALL BE IN CONTACT WITH THE FLANGE OF THE POST SUPPORT.
 - 2.3.3 ON ALL BRACED DIAMOND SHAPED SIGNS, IN TYPICAL ASSEMBLY SHOWN, THE END OF THE OVERHANGING LENGTH OF THE BRACE SHALL BE AT LEAST 44.5mm FROM THE CENTERLINE OF THE POST SUPPORT, BUT NO CLOSER THAN 25mm TO ANY EDGE OF THE SIGN. THE TWO (2) OVERHANGING SECTIONS OF EACH BRACE SHALL BE EQUAL IN LENGTH.
 - 2.3.4 ON ALL BRACED SQUARE SHAPED SIGNS, ON THE WARNING SIGN ASSEMBLY SHOWN, THE END OF THE BRACE SHALL BE FLUSH WITH THE OUTER EDGE OF THE POST SUPPORT FLANGE.
 - 2.3.5 ON ALL BRACED SIGNS, THE CENTERLINE OF THE POST SHALL BE WITHIN 75mm (ON EITHER SIDE) OF THE CENTERLINE OF THE SIGN HOLE.
 - 2.4 POST SUPPORT
 - 2.4.1 THE TOP OF THE POST SUPPORTS SHALL BE NO CLOSER THAN 25mm TO THE EDGE OF THE DIAMOND SIGN.



(TOP VIEW OMITTED)

TYPICAL SINGLE-POST MOUNTING FOR WARNING SIGN ASSEMBLY



TYPICAL TWO-POST MOUNTING FOR WARNING SIGNS

- △ ADDITION OF EXTRUDED RIB
- △ ADDED TP3-1 REFERENCE AND MIN. HEIGHTS
- △ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
 TYPICAL WARNING SIGN ASSEMBLY
 ARRANGEMENTS AND MOUNTINGS

PREPARED: 10/01/69

REVISIONS
△ 05-01-70
△ 12-27-73
△ 06-01-76
△ 09-13-93
△ 05-06-94

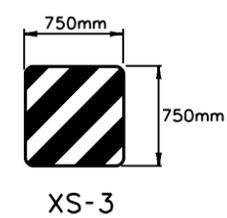
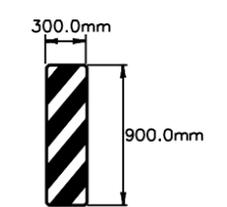
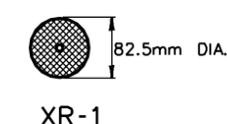
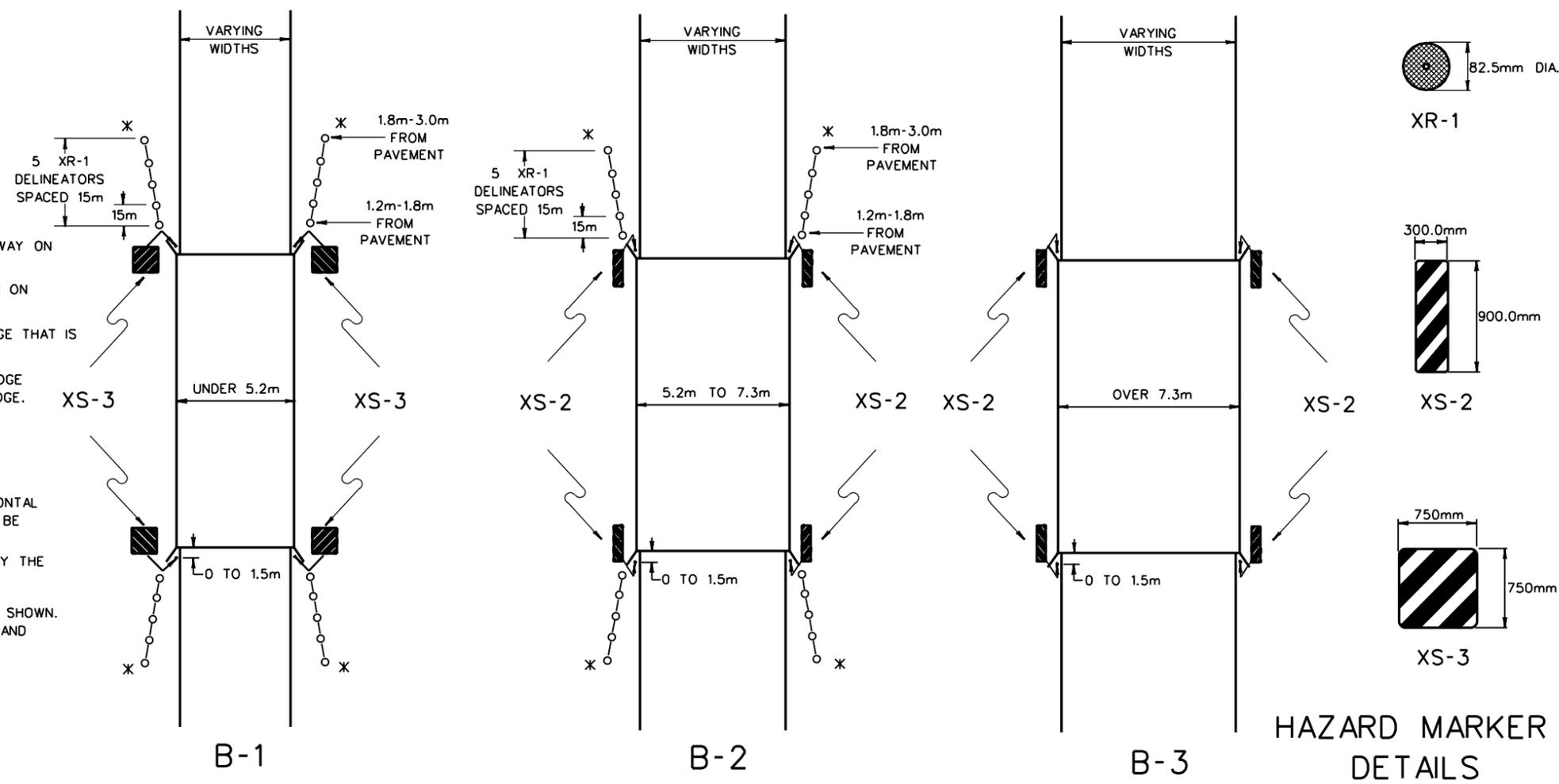
STANDARD SHEET TP4-2

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

GENERAL NOTES

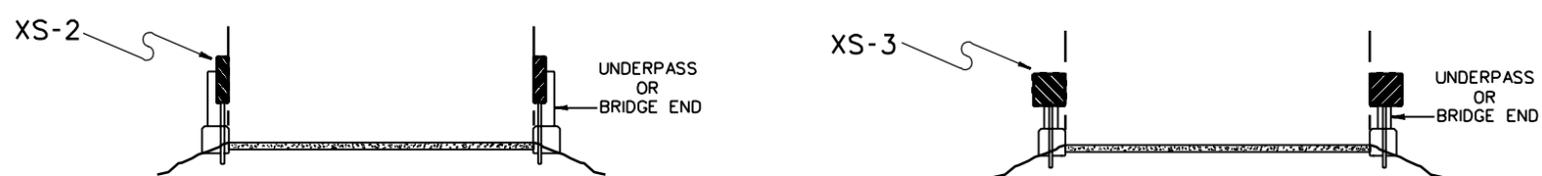
- HAZARD MARKERS AND DELINEATION ARE DETERMINED BY THE WIDTH OF THE PAVED ROADWAY ON THE BRIDGE.
 - BRIDGES WITH STRAIGHT ROADWAY APPROACHES: USE ACTUAL PAVED ROADWAY WIDTH ON BRIDGE.
 - BRIDGES WITH CURVED ROADWAY APPROACHES: USE PAVED ROADWAY WIDTH ON BRIDGE THAT IS USED BY VEHICLES (HEREBY DESIGNATED "EQUIVALENT" WIDTH).
THE "EQUIVALENT" WIDTH WILL EITHER BE EQUAL TO OR LESS THAN THE ACTUAL BRIDGE ROADWAY WIDTH, BUT WILL NEVER EXCEED THE ACTUAL ROADWAY WIDTH OF THE BRIDGE. THE "EQUIVALENT" WIDTH IS DETERMINED BY FIELD OBSERVATION SURVEY.
- STANDARD DRAWINGS
 - DRAWING TO BE USED: SEE TABLE BELOW
 - HAZARD MARKER PLACEMENT DETAIL: THIS DRAWING SHOWS THE RECOMMENDED HORIZONTAL PLACEMENT OF BOTH XS-2 AND XS-3 HAZARD MARKERS. VERTICAL PLACEMENT SHALL BE 1.2m FROM BOTTOM OF HAZARD MARKER TO RIGHT EDGE PAVEMENT ELEVATION. IF A SEPERATE POST IS UNFEASIBLE TO ERECT AS SHOWN, THEN AND ONLY THEN MAY THE HAZARD MARKER BE CONSIDERED TO BE PLACED ON THE BRIDGE STRUCTURE.
 - DELINEATORS SHALL BE PLACED IN AN ALIGNMENT IN ACCORDANCE WITH DRAWINGS AS SHOWN. THE DELINEATOR MOUNTING DETAILS ARE SHOWN ON STANDARD DETAIL SHEETS TE11-1 AND TE11-2.

DRAWING TO BE USED		
ROADWAY WIDTH	EQUIVALENT WIDTH	DRAWING
VARIABLES	LESS THAN 5.2m	B - 1
VARIABLES	5.2m TO 7.3m	B - 2
VARIABLES	GREATER THAN 7.3m	B - 3
GREATER THAN 24	5.2m TO 7.3m	B - 2



HAZARD MARKER DETAILS

* - WHERE APPROACH GUARDRAIL IS PRESENT, XR-1 DELINEATORS SHALL BE PLACED IN THE GUARDRAIL LINE.



HAZARD MARKER PLACEMENT DETAILS

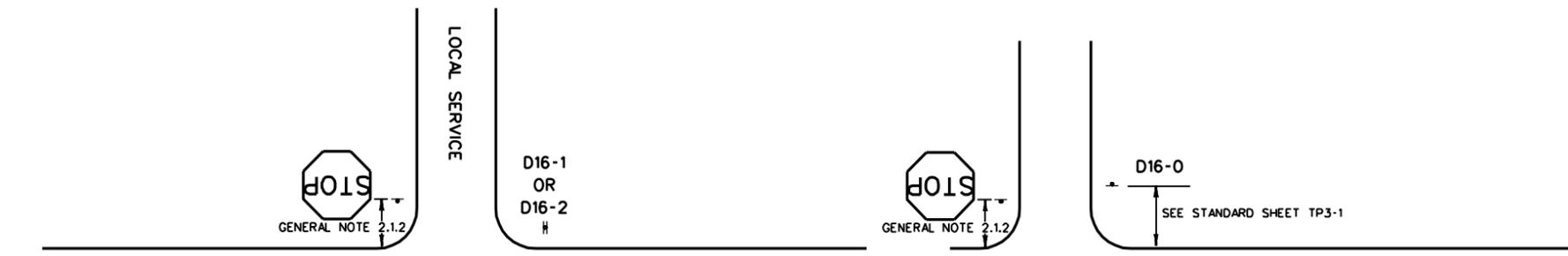
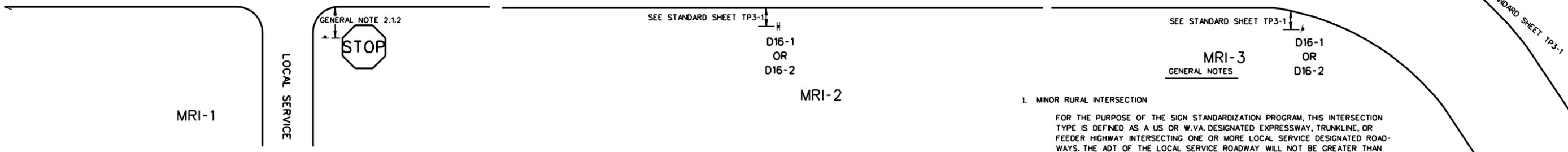
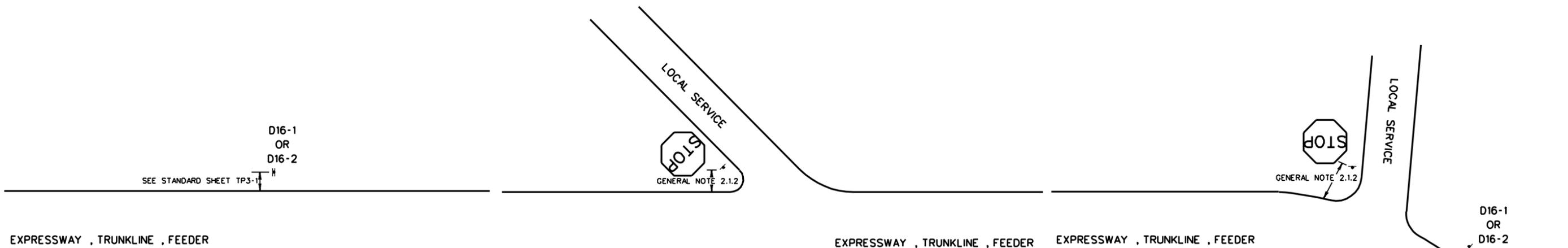
- △ DELETED SIGNATURE BLOCK
- △ REV. NOTE 2, ADDED DWG. TABLE, GR
- △ DELETED OLD NOTE 2.1, SUBSTITUTED DRAWING TABLE
- △ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
 TYPICAL HAZARD MARKER AND DELINEATOR LAYOUT
 FOR BRIDGES AND UNDERPASSES

PREPARED: 10/01/69
REVISIONS
05/01/70
△ 11/03/76
△ 04/30/92
△ 01/15/93
△ 05/06/94

STANDARD SHEET TP5-2

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



1. MINOR RURAL INTERSECTION
 FOR THE PURPOSE OF THE SIGN STANDARDIZATION PROGRAM, THIS INTERSECTION TYPE IS DEFINED AS A US OR W.VA. DESIGNATED EXPRESSWAY, TRUNKLINE, OR FEEDER HIGHWAY INTERSECTING ONE OR MORE LOCAL SERVICE DESIGNATED ROADWAYS. THE ADT OF THE LOCAL SERVICE ROADWAY WILL NOT BE GREATER THAN 1,500 TOTAL VEHICLES.
2. PLACEMENT OF SIGNS
 - 2.1 STOP SIGNS
 - 2.1.1 STOP SIGNS SHALL BE SITUATED IN SUCH A MANNER THAT THE SIGN MESSAGE SHALL NOT BE VISIBLE FROM THE EXPRESSWAY, TRUNKLINE, OR FEEDER HIGHWAY.
 - 2.1.2 STOP SIGNS SHALL BE LOCATED A RECOMMENDED DISTANCE OF THREE (3) METERS FROM THE PAVEMENT EDGE OF THE EXPRESSWAY, FEEDER, OR TRUNKLINE, BUT CAN BE A MAXIMUM OF 15m IF CONDITIONS MAKE SUCH NECESSARY.
 - 2.1.3 STOP SIGNS MAY BE LOCATED IN POSITIONS OTHER THAN THOSE SHOWN ON THE DRAWINGS, ONLY IF IT CAN BE ADEQUATELY JUSTIFIED.
 - 2.2 D16 SERIES SIGNING
 - 2.2.1 D16 SERIES SIGNS SHALL BE SITUATED IN SUCH A MANNER THAT THE SIGN MESSAGE SHALL BE SEEN AS FAR IN ADVANCE AS POSSIBLE BY VEHICLES ON THE EXPRESSWAY, FEEDER, OR TRUNKLINE.
 - 2.2.2 D16 SERIES SIGNS THAT ARE MOUNTED BACK TO BACK ARE TO BE LOCATED IN POSITIONS SHOWN ON DRAWINGS, UNLESS OTHER POSITIONING CAN BE ADEQUATELY JUSTIFIED.
 - 2.2.3 DRAWINGS MRI-1, MRI-2, AND MRI-3 AND MRI-4 SHOW THE PROPER RELATIONSHIP OF THE LOCATION OF D16 SIGNS TO "STOP" SIGNS. ANY EXCEPTIONS WILL HAVE TO BE ADEQUATELY JUSTIFIED.
 - 2.2.4 DRAWING MRI-5 SHOWS THE PROPER PLACEMENT OF D16-0 SIGNS. D16-0 SIGNS ARE TO BE ERECTED ONLY IF D16-1 OR D16-2 SIGNS ARE NOT ERECTED AT THE INTERSECTION IN QUESTION.

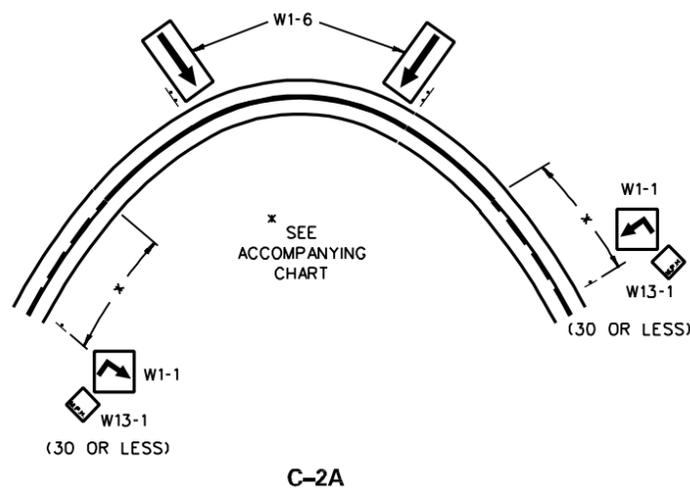
△ DELETED OLD NOTES 1.2 AND 2.1
 △ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
 TYPICAL SIGNING LAYOUT FOR
 MINOR RURAL INTERSECTIONS

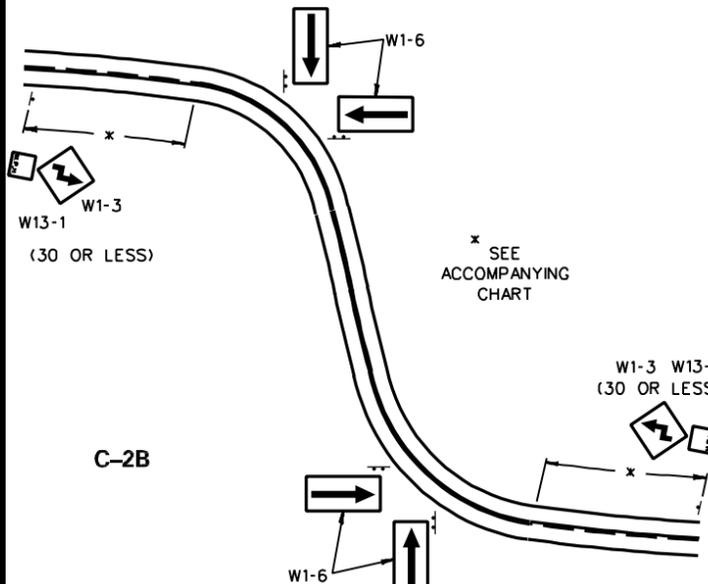
REVISIONS
5/1/70
△ 11/3/76
△ 05/05/94

STANDARD SHEET TP5-3

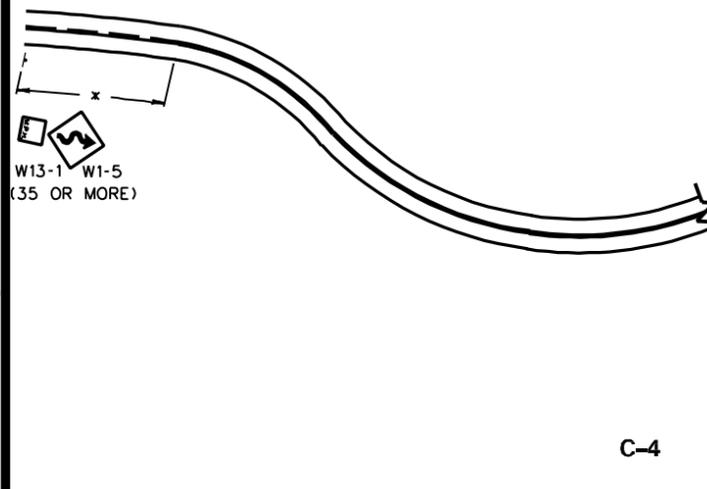
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



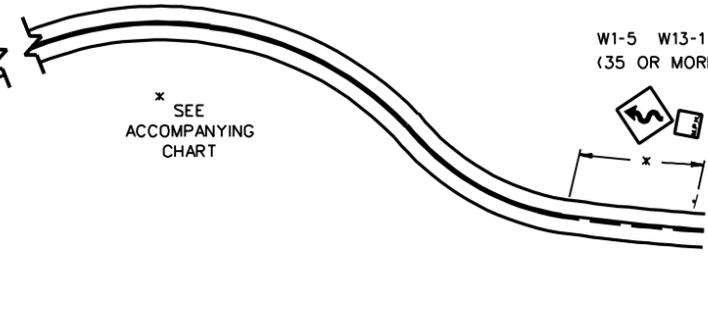
C-2A



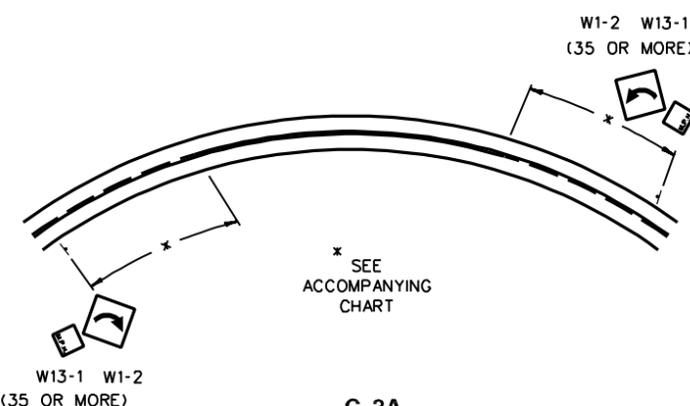
C-2B



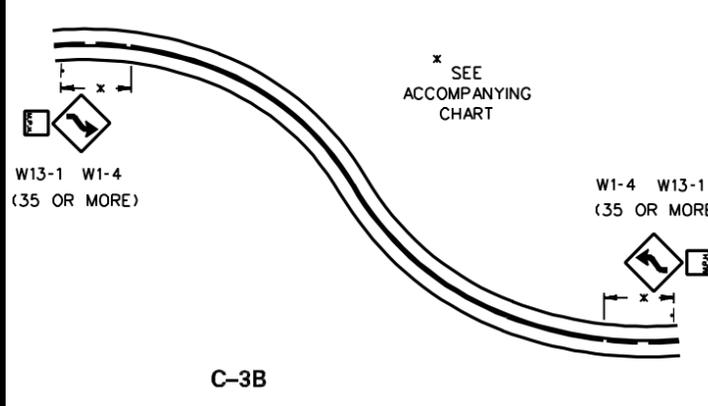
C-4



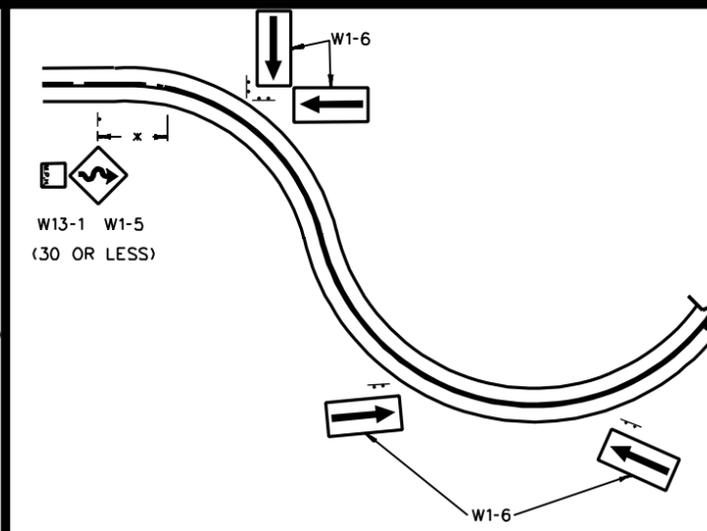
W1-5 W13-1
(35 OR MORE)



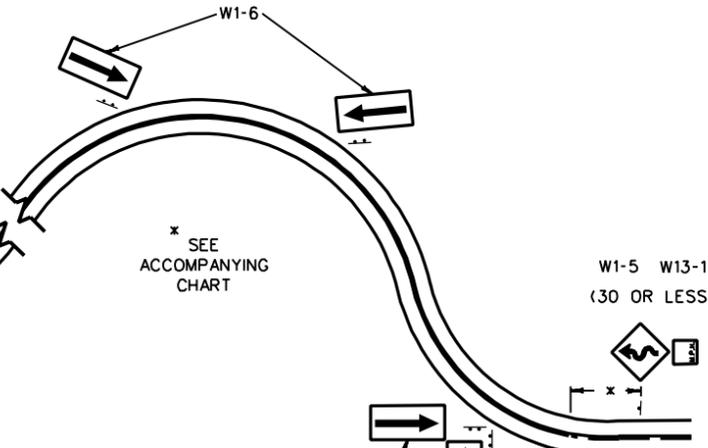
C-3A



C-3B



C-5



W1-5 W13-1
(30 OR LESS)

GENERAL NOTES

- STANDARD DRAWING C-2A AND C-2B
 - THIS STANDARD IS TO BE USED FOR ADVISORY CURVE SPEEDS OF 50km/hr (30 MPH) OR LESS, UNLESS SPECIFICALLY NOTED OTHERWISE IN THE SIGN PLANS.
 - THE SIGNS SHALL BE A STANDARD SIZE W1-1 OR W1-3, W1-6 AND W13-1, UNLESS SPECIFICALLY NOTED OTHERWISE IN THE SIGN PLANS.
 - THE STANDARD W1-6 SIGNS SHALL BE ERECTED ON THE OUTSIDE OF A TURN IN LINE WITH, AND AT RIGHT ANGLES TO, APPROACHING TRAFFIC. NO EXACT SPECIFICATIONS CAN BE GIVEN FOR THE PLACEMENT OF THE W1-6. ITS LOCATION IS TO BE DETERMINED AT THE TIME THE SIGNS ARE TO BE ERECTED.
- STANDARD DRAWING C-3A AND C-3B
 - THIS STANDARD IS TO BE USED FOR ADVISORY CURVE SPEEDS OF 55km/hr (35 MPH) OR MORE, UNLESS SPECIFICALLY NOTED OTHERWISE IN THE SIGN PLANS.
 - THE SIGNS SHALL BE A STANDARD SIZE W1-2 OR W1-4 AND W13-1, UNLESS SPECIFICALLY NOTED OTHERWISE IN THE SIGN PLANS.
- STANDARD DRAWING C-4
 - THIS STANDARD IS USED FOR A SERIES OF CURVES, 55km/hr (35 MPH) OR MORE, UNLESS SPECIFICALLY NOTED OTHERWISE IN THE SIGN PLANS.
 - THE SIGNS SHALL BE A STANDARD SIZE W1-2, W1-5 AND W13-1, UNLESS SPECIFICALLY NOTED OTHERWISE IN THE SIGN PLANS.
- STANDARD DRAWING C-5
 - THIS STANDARD IS USED FOR A SERIES OF CURVES, 50km/hr (30 MPH) OR LESS, UNLESS SPECIFICALLY NOTED OTHERWISE IN THE SIGN PLANS.
 - THE SIGNS SHALL BE A STANDARD SIZE W1-1 OR W1-5, AND W1-6 AND W13-1, UNLESS SPECIFICALLY NOTED OTHERWISE IN THE SIGN PLANS.
 - THE STANDARD W1-6 SIGNS SHOULD BE ERECTED ON THE OUTSIDE OF A TURN, IN LINE WITH, AND AT RIGHT ANGLES TO, APPROACHING TRAFFIC. NO EXACT SPECIFICATIONS CAN BE GIVEN FOR THE PLACEMENT OF THE W1-6. ITS LOCATION IS TO BE DETERMINED AT THE TIME THE SIGNS ARE TO BE ERECTED.

CHART FOR ADVISORY CURVE DRAWINGS

SPEED LIMIT (km/hr)	ADVISORY SPEED (MPH)	DESIRABLE DISTANCE FROM START OF CURVE TO ADVISORY CURVE SIGN (METERS)	SPEED LIMIT (km/hr)	ADVISORY SPEED (MPH)	DESIRABLE DISTANCE FROM START OF CURVE TO ADVISORY CURVE SIGN (METERS)
40km/hr	10	30m	70km/hr	10	107m
	15	30m		15	98m
	20	30m		20	90m
50km/hr	10	45m		25	83m
	15	38m		30	75m
	20	30m		35	68m
55km/hr	25	30m	40	60m	
	10	60m	80km/hr	10	130m
	15	56m		15	126m
20	53m	20		120m	
60km/hr	25	48m		25	114m
	30	45m		30	98m
	10	83m		35	87m
90km/hr	15	80m	40	68m	
	20	75m	45	60m	
	25	63m	90km/hr	10	150m
	30	53m		15	144m
	35	45m		20	143m
	10	135m		25	120m
15	110m	30		120m	
20	90m	35		110m	
	83m	40	90m		
	75m	45	83m		
		50	75m		

- DELETED SIGNATURE BLOCK
- CHANGED CHART
- ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS

STANDARD DETAIL

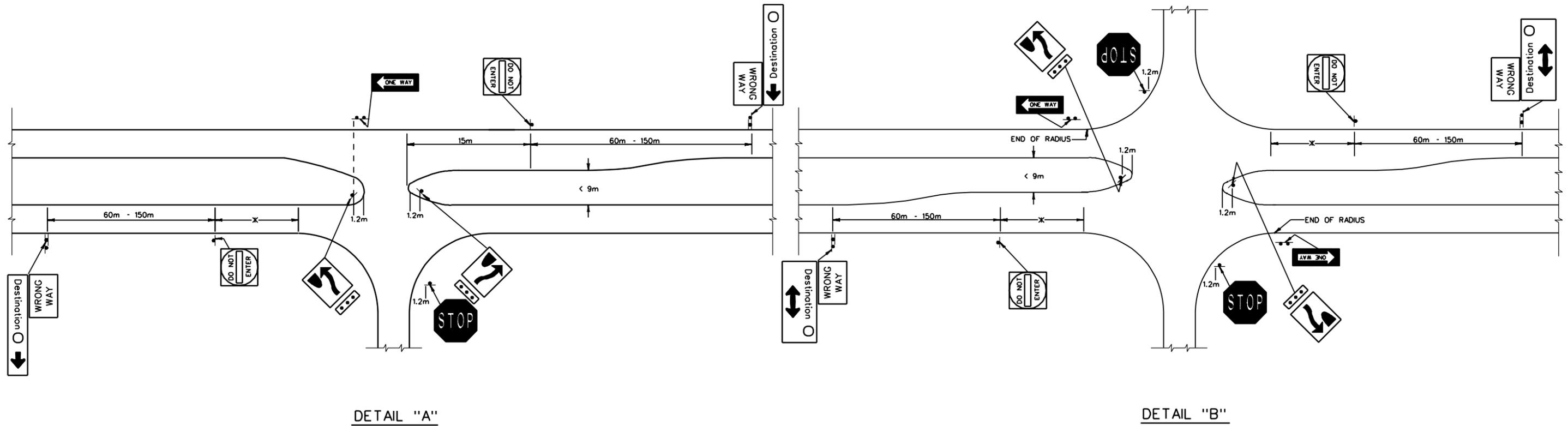
TYPICAL LAYOUT FOR ADVISORY CURVE SIGNING

PREPARED: 10/01/69

REVISIONS
05-01-70
01-28-73
11-03-76
09-30-84
05-05-94

STANDARD SHEET TP5-4

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



DETAIL "A"

DETAIL "B"

SIGN NO.	SIZE	LOCATION
R1-1	900.0mmx900.0mm	See Detail A-B
R4-7	600.0mmx750.0mm	See Detail A-B
XR-3	375.0mmx150.0mm	See Detail A-B
R5-1a	900.0mmx600.0mm	60m - 150m
R6-1L	1200.0mmx450.0mm	See Detail A-B
R5-1	900.0mmx900.0mm	See Detail A-B

NOTE:
 ▲ ALL SIGNS ARE 1.8m MINIMUM DISTANCE FROM EDGE OF PAVED SHOULDER.

✕ - 15m FROM END OF RADIUS

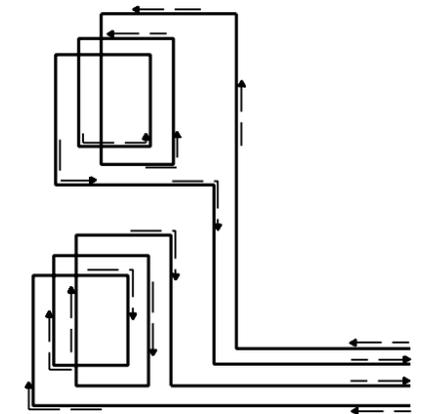
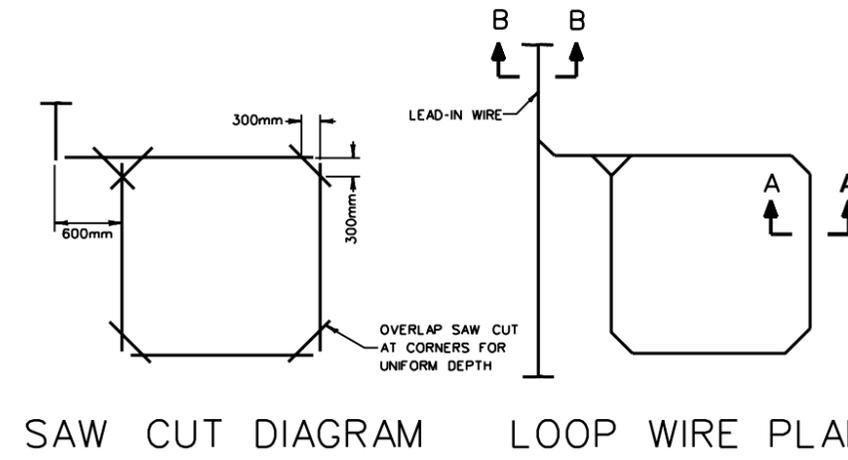
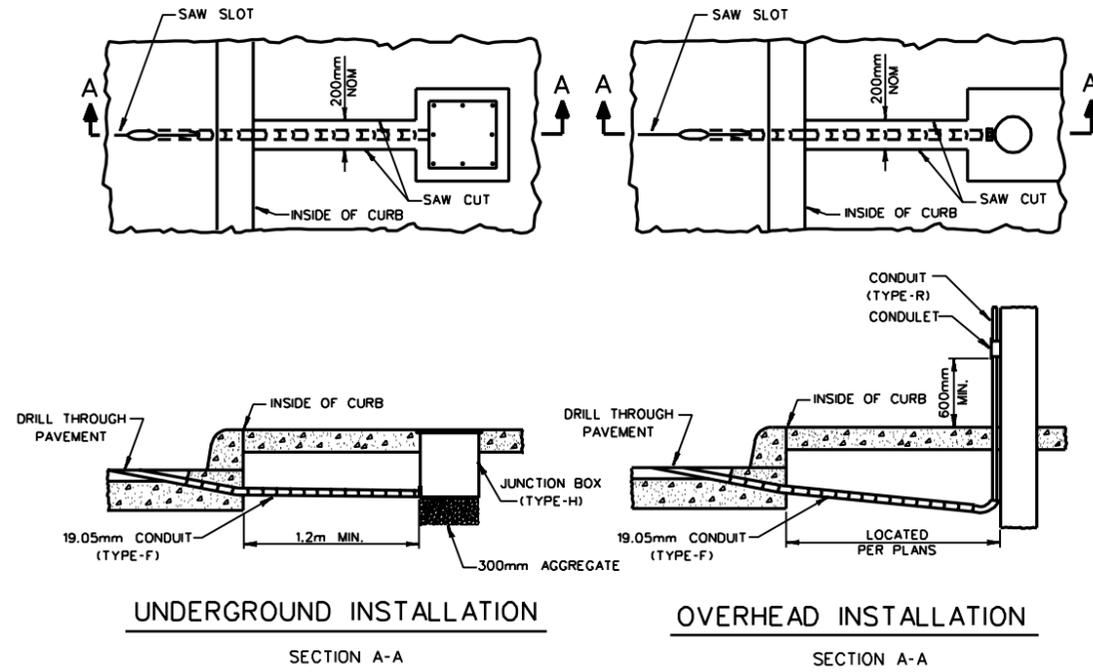
- ▲ COMPLETE REVISION DUE TO NEW U-CHANNEL RESTRICTIONS
- ▲ CHANGED CLEAR FROM 4' TO 6'
- ▲ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
 REGULATORY SIGN PLACEMENT
 FOR DIVIDED HIGHWAYS

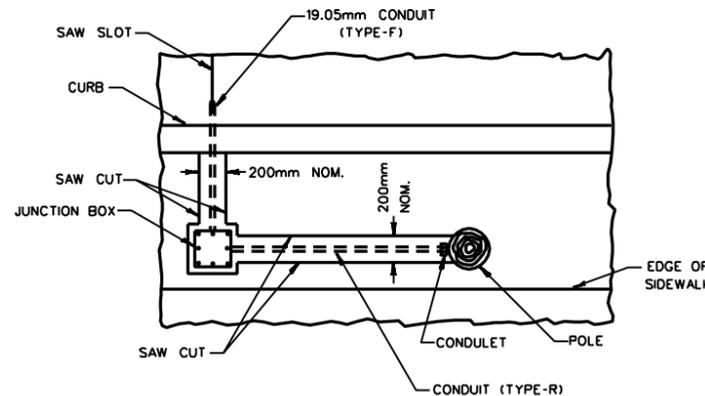
PREPARED: 01/08/70
REVISIONS
04-22-75
05-21-76
12-19-88
▲ 04-23-92
▲ 09-13-93
▲ 05-05-94

STANDARD SHEET TP5-6A

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

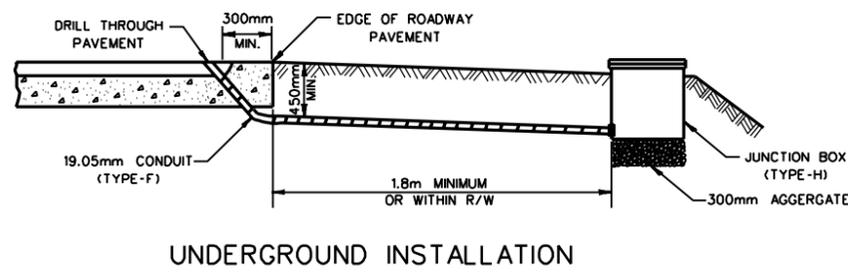


TYPICAL SECTION IN GUTTER AND SIDEWALK

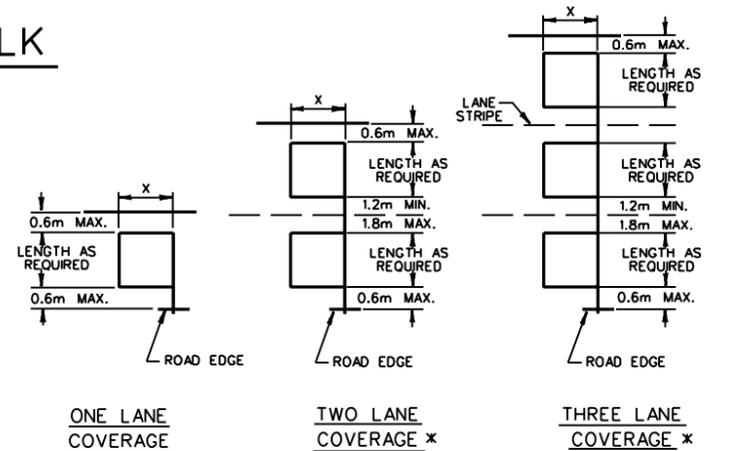


WHEN UNDERGROUND CONDUIT IS GREATER THAN 10' USE JUNCTION BOX

TYPICAL PLAN IN GUTTER AND SIDEWALK



UNDERGROUND INSTALLATION



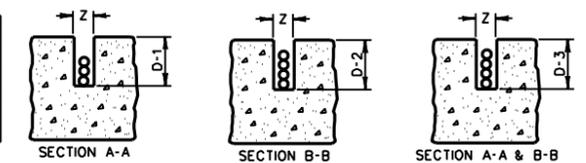
TYPICAL LANE COVERAGE DIAGRAM

*-SEE WINDING DETAIL ABOVE

GENERAL NOTES:

- JUNCTION BOXES:
WHEN TYPE H JUNCTION BOXES ARE SPECIFIED ON THE CONTRACT PLANS, THE COVER ELEVATION SHALL BE THE SAME AS THE EXISTING GRADE OR IMPROVED SHOULDER GRADE.
- SAW SLOT AND LOOP WIRE:
A. THE "Z" DIMENSION SHALL BE LARGE ENOUGH TO ACCOMMODATE THE LOOP WIRE WITHOUT CHAFING THE INSULATION WITH A MAXIMUM DIMENSION OF 4.8mm.
B. ALL CORNERS OF THE LOOP SHALL BE CUT AT A 45° ANGLE AND HAVE A MINIMUM DIAGONAL LENGTH OF 40mm.
C. ALL WIRE SHALL BE PUSHED INTO THE SAW CUT WITH WOOD STICKS TO INSURE THE INSULATION IS NOT SCARRED. THE USE OF METAL TOOLS IS NOT PERMITTED.
D. THE NUMBER OF TURNS OF LOOP WIRE IS SPECIFIED ON THE CONTRACT PLANS FOR EACH INDIVIDUAL LOOP.
E. THE "X" DIMENSION SHALL BE 6 FOOT UNLESS OTHERWISE SPECIFIED ON THE CONTRACT PLANS.

DEPTH	NO. OF WIRES				
	1	2	3	4	5
D-1	38mm	50mm	50mm	63mm	75mm
D-2	50mm	50mm	63mm	75mm	75mm
D-3	50mm	50mm	63mm	75mm	75mm



LOOP IN CONCRETE LOOP IN ASPHALT

SAW SLOT DETAIL

- ▲ REMOVE SIGN ON TYPE R CONDUIT ON TYPICAL GUTTER AND SIDEWALK PLAN.
- ▲ SIGNATURE BLOCK
- ▲ ADDED ADJACENT LOOP WINDING
- ▲ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
LOOP DETECTOR TYPE III
INSTALLATION

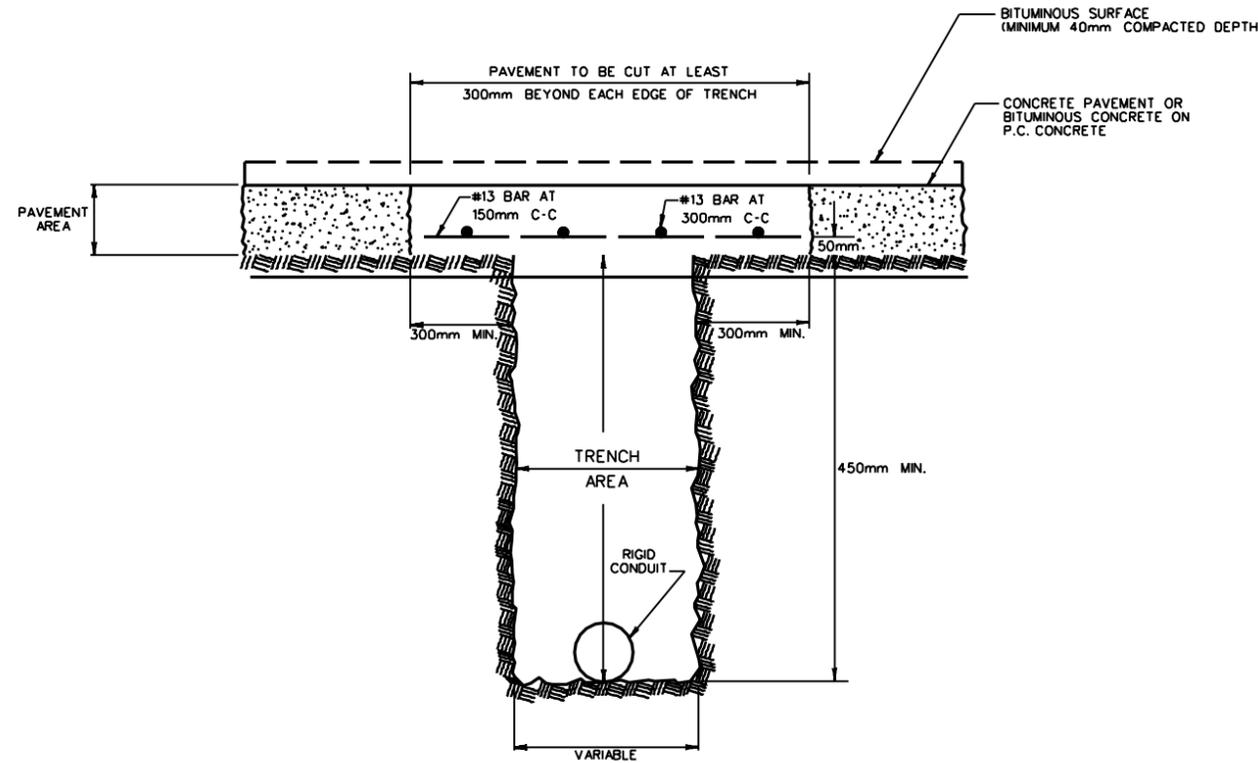
PREPARED: 05/00/67

REVISIONS
11-29-67
06-28-68
05-02-69
09-30-69
01-01-70
11-00-70
12-00-73
▲ 03-23-77
▲ 01-19-93
▲ 05-05-94

STANDARD SHEET TES-01

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

MINIMUM REPLACEMENT REQUIREMENT FOR RIGID OR FLEXIBLE PAVEMENT CUTS (INCLUDING BASE & SUB-BASE)



NOTES:

REPLACING TRENCH AREA

THE TRENCH AREA SHALL BE BACKFILLED WITH CLASS 1 AGGREGATE BASE COURSE MATERIAL IN 100mm COMPACTED LAYERS. (SEE W.VA. STANDARD SPECIFICATIONS SECTION 307).

REPLACING PAVEMENT AREA

CONCRETE USED TO REPLACE PAVEMENT AREA OF CUT SHALL BE CLASS B PORTLAND CEMENT CONCRETE.

IN REPLACING CONCRETE PAVEMENTS WHICH HAVE BEEN BITUMINOUS SURFACED, THE PORTLAND CEMENT CONCRETE SHALL BE REPLACED TO AN ELEVATION ONE AND A HALF (1.5) TIMES BELOW THE FINISHED GRADE OF THE EXISTING BITUMINOUS SURFACE. BITUMINOUS CONCRETE SHALL BE USED TO COMPLETE THE PAVEMENT REPLACEMENT TO EXISTING SURFACE ELEVATION. (W.VA. STANDARD SPECIFICATION DIVISION 400).

IN ADDITION TO THE NEW REINFORCING BARS SHOWN: IF THERE IS EXISTING REINFORCING IN THE PAVEMENT IT SHALL BE BENT UP AND THEN BACK INTO THE NEW CONCRETE.

- △ REVISED REPLACING TRENCH AREA NOTES
- △ ADDED METRIC

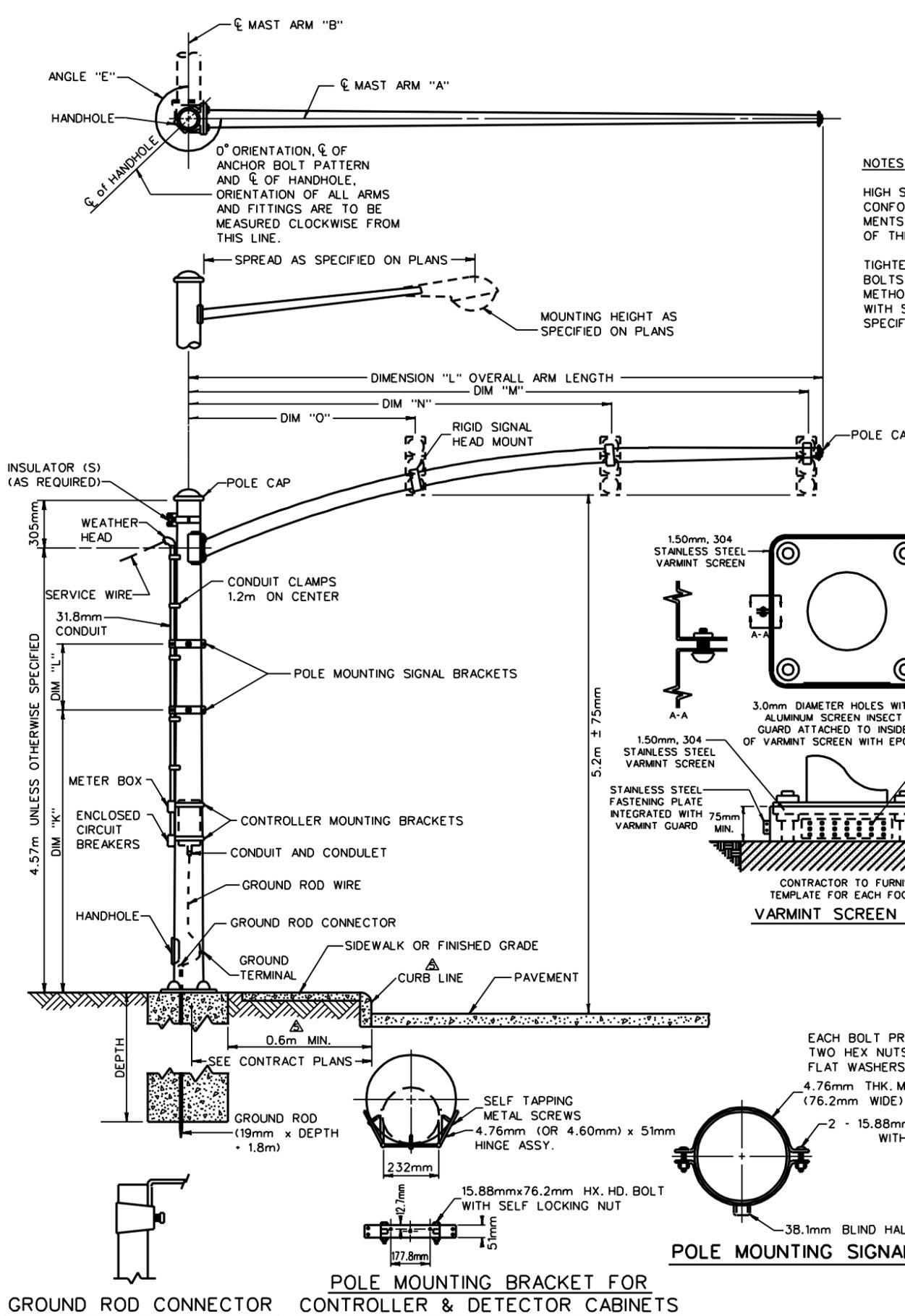
**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
PAVEMENT REPLACEMENT**

PREPARED: 07/09/74

REVISIONS
△ 01-19-93
△ 05-05-94

STANDARD SHEET TES-04

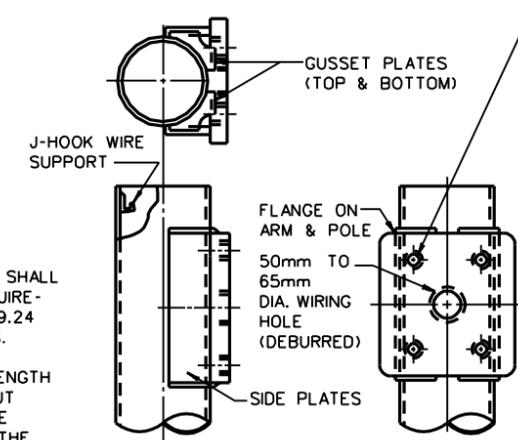
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



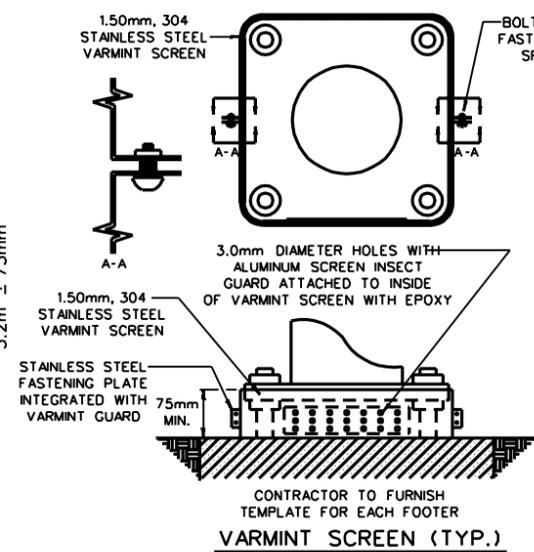
NOTES

HIGH STRENGTH BOLTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 709.24 OF THE SPECIFICATIONS.

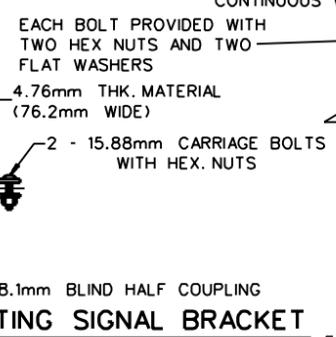
TIGHTEN ALL HIGH STRENGTH BOLTS BY TURN OF NUT METHOD IN ACCORDANCE WITH SECTION 615 OF THE SPECIFICATIONS.



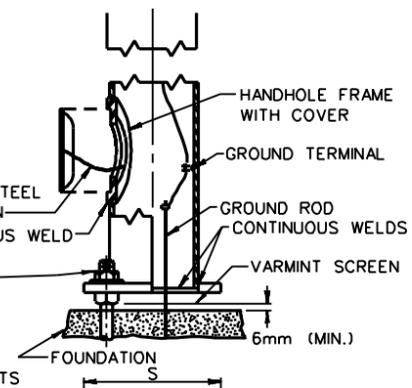
ARM ATTACHMENT



RIGID MOUNTING SIGNAL BRACKET



POLE MOUNTING SIGNAL BRACKET



POLE BASE

TAPPED HOLES FOR FOUR (4) A 325M BOLTS WITH A 563M, GRADE DH NUTS AND F 436M FLAT WASHERS (ALL GALVANIZED).

GENERAL NOTES

- SIGNAL HEADS:**
 - ALL SIGNALS ON A SINGLE MAST ARM SHALL HAVE THE RED SECTIONS LEVEL. ALL SIGNAL HEADS SHALL BE 5.2m (PLUS OR MINUS 75mm) ABOVE THE PAVEMENT DIRECTLY BELOW IT, UNLESS OTHERWISE SPECIFIED.
 - POST MOUNTED SIGNAL HEADS SHALL BE MOUNTED AT A HEIGHT SPECIFIED ON THE CONTRACT PLANS.
- POLE:**
 - EACH POLE SHALL BE COMPLETE WITH TWO POLE CAPS, J-HOOK, AND A HANDHOLE.
 - POLE DIMENSIONS ARE NOTED ON THE CONTRACT PLANS.
 - SEE TES-40 FOR FOUNDATION DETAILS.
- CONDUIT:**
 - CONDUIT FOR THE POWER SUPPLY SHALL BE FASTENED TO THE POLE WITH CONDUIT CLAMPS 1.2m C.C.
 - CONDUIT CLAMPS SHALL BE FASTENED TO THE POLE WITH SELF TAPPING SCREWS.
- CONTROLLER MOUNTING BRACKET:**
 - WHEN CONTROLLER CABINET OR CABINETS ARE TO BE MOUNTED ON A POLE, THE POLE SHALL BE COMPLETE WITH TWO BRACKETS PER CABINET.
 - THE HEIGHT OF THE CONTROLLER CABINET IS SPECIFIED ON THE CONTRACT PLANS.
 - CONTRACTOR SHALL FIELD DRILL THE HOLES FOR THE SELF-TAPPING SCREWS AFTER FINAL POSITION HAS BEEN DETERMINED.
- HAND HOLES:**
 - THE HAND HOLE IN THE BASE SHALL BE A MINIMUM SIZE OF 100mmx165mm.
 - THE HAND HOLE AT THE MAST ARM (FOR POLE HEIGHTS GREATER THAN 6.1m) SHALL BE A MINIMUM SIZE OF 75mmx125mm.
 - THE HAND HOLE SHALL BE LOCATED 180° FROM MAST ARM 'A' OR AT ONE HALF THE ANGLE 'E' WHEN TWO MAST ARMS ARE USED. THIS HOLE MAY BE SHOP DRILLED BY THE MANUFACTURER.
- SIGNAL HEAD MOUNTING BRACKET:**
 - WHEN POST MOUNT SIGNALS ARE CALLED FOR ON CONTRACT PLANS, THE POLE SHALL BE COMPLETE WITH TWO BRACKETS PER SIGNAL CONFIGURATION.
 - THE 25mm HOLE FOR THE SIGNAL HEAD MOUNTING BRACKET SHALL BE DRILLED AND DEBURRED AFTER THE FINAL POSITION OF THE SIGNAL HEAD HAS BEEN DETERMINED. THIS HOLE MAY BE DRILLED BY THE MANUFACTURER.
- SIGNAL HANGER:**
 - ONE SIGNAL HEAD HANGER IS REQUIRED FOR EACH SUSPENDED SIGNAL HEAD.
 - EACH WIRE OUTLET SHALL BE DEBURRED AND BE PROTECTED BY A RUBBER GROMMET.
- ANCHOR BOLTS:**
 - ANCHOR BOLT DETAILS ARE NOTED ON TES-40.
 - EACH ANCHOR BOLT SHALL HAVE A BOLT COVER.
- WELDING:**

CONNECTION SHALL BE DESIGNED FOR THE LOAD ON THE MEMBERS BUT NOT LESS THAN 100 PERCENT OF THE STRENGTH OF THE MEMBERS.
- INSULATORS:**

INSULATORS SHALL BE INSTALLED WHEN SECONDARY POWER IS CARRIED PAST THE SIGNAL POLE INSTALLATION SINGLE INSULATORS SHALL ALSO BE USED TO CARRY INTERCONNECT WIRE PAST THE INSTALLATION THE INSULATOR ALSO MAY BE MOUNTED ON EITHER SIDE OF THE POLE.
- LUMINAIRE MOUNTING BRACKET:**
 - SPREAD IS SPECIFIED ON THE CONTRACT PLANS.
 - LUMINAIRE SHALL BE CONNECTED TO THE BRACKET WITH A SLIP FIT TYPE CONNECTION.
 - BRACKET SHALL BE CONNECTED TO THE POLE SO THE STRENGTH OF THE CONNECTION EXCEEDS THE STRENGTH OF THE BRACKET.

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
MAST ARM
TYPES B1 AND B1L

PREPARED: 08/00/74

REVISIONS
06-18-76
10-5-77
09-20-84
07-7-89
01-20-93
09-13-93
09-13-93

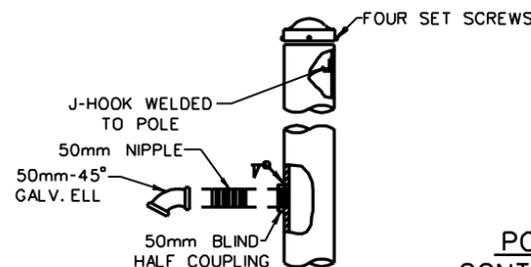
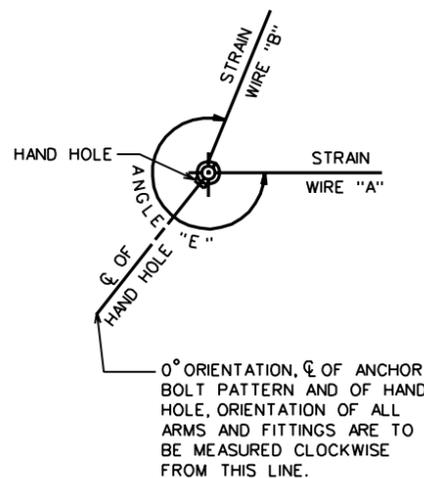
STANDARD SHEET TES-13

- △ DELETED CAST STEEL BASE AND MODIFIED GROUND TERMINAL
- △ CHANGED GROUND ROD TO 3/4"
- △ NOTE: HIGH STRENGTH BOLTS
- △ DELETED GROUT AND CABLE MOUNTING
- △ ADDED 2' MIN., CURB LINE, VARMINTE SCREEN
- △ ADDED METRIC

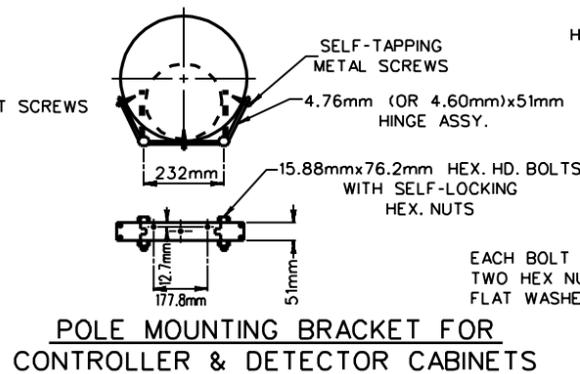
F, S, & B.C. DIMENSIONS SHALL BE FURNISHED BY POLE MANUFACTURER

GROUND ROD CONNECTOR **POLE MOUNTING BRACKET FOR CONTROLLER & DETECTOR CABINETS**

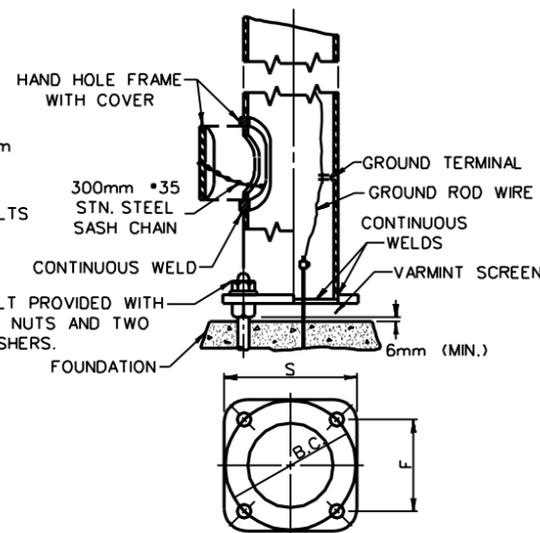
PUBLIC PROJECT DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



POLE WIRE INLET AND POLE CAP

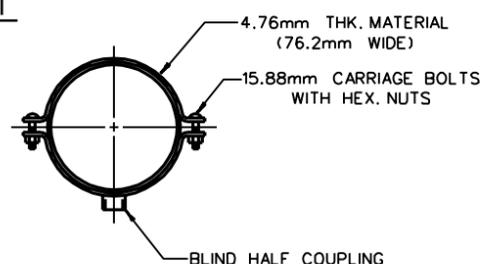


POLE MOUNTING BRACKET FOR CONTROLLER & DETECTOR CABINETS

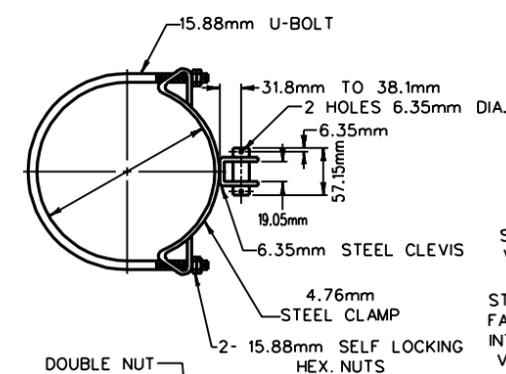


S.F. & B.C. DIMENSIONS SHALL BE FURNISHED BY POLE MANUFACTURER

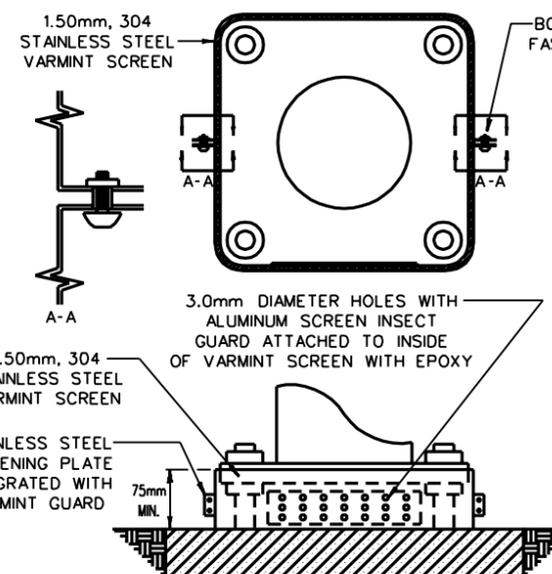
POLE BASE



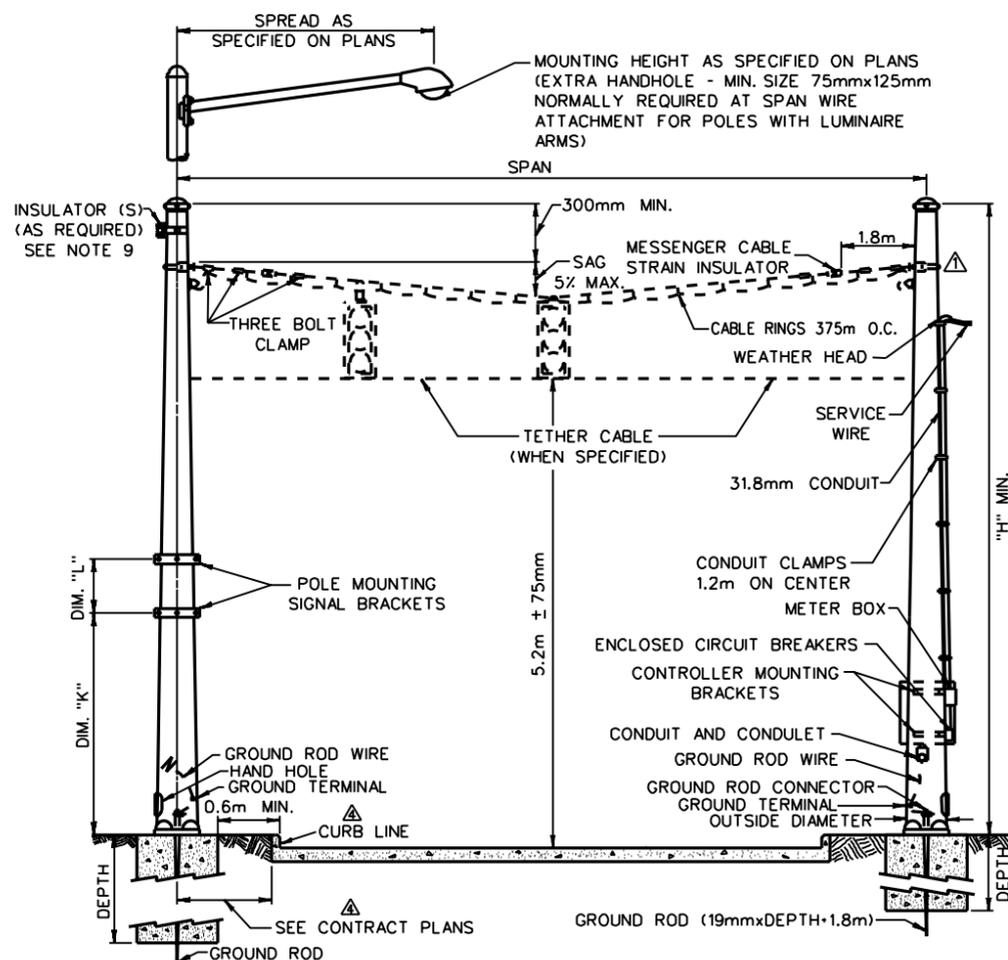
POLE MOUNTING SIGNAL BRACKET



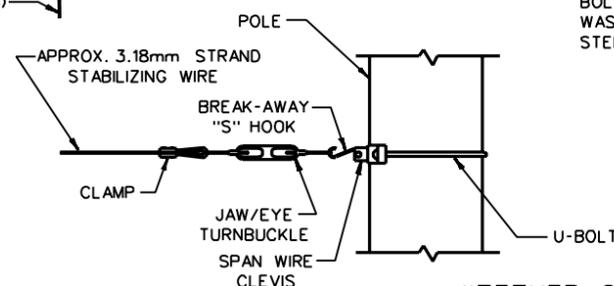
SPAN WIRE CLAMP



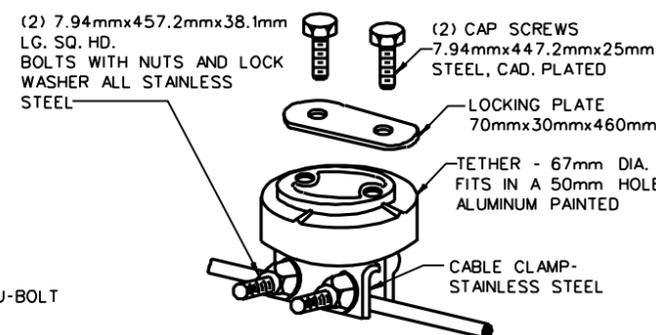
VARMINT SCREEN (TYP.)



GROUND ROD CONNECTOR



"TETHER CABLE ATTACHMENT FOR PROGRAMMED SIGNAL HEADS"



GENERAL NOTES

- SIGNAL HEADS:**
 - ALL SIGNAL HEADS ON A SINGLE SPAN SHALL HAVE THE RED SECTIONS LEVEL. ALL SIGNAL HEADS SHALL HAVE A 5.2m, PLUS OR MINUS 75mm CLEARANCE FROM THE BOTTOM OF THE SIGNAL HEAD TO THE PAVEMENT DIRECTLY BELOW IT, (UNLESS OTHERWISE SPECIFIED). AT LEAST ONE HEAD, PER SPAN, SHALL BE DIRECTLY SECURED TO THE SPAN WIRE. IF APPROVED BY THE ENGINEER, THE REMAINING SIGNAL HEADS MAY BE PIPED TO ACHIEVE ROADWAY CLEARANCE.
 - POST MOUNTED SIGNAL HEADS SHALL BE MOUNTED AT A HEIGHT SPECIFIED ON THE CONTRACT PLANS.
- POLE:**
 - EACH POLE SHALL BE COMPLETE WITH ONE POLE CAP, J-HOOK, WIRE CLAMP AND HAND HOLE.
 - POLE DIMENSIONS ARE NOTED ON THE CONTRACT PLANS.
 - SEE TES-40 FOR FOUNDATION DETAILS.
- CONDUIT:**
 - CONDUIT FOR THE POWER SUPPLY SHALL BE FASTENED TO THE POLE WITH CONDUIT CLAMPS 1.2m O.C.
 - CONDUIT CLAMPS SHALL BE FASTENED TO THE POLE WITH SELF-TAPPING SCREWS.
- CONTROLLER MOUNTING BRACKET:**
 - WHEN CONTROLLER CABINET OR CABINETS ARE TO BE MOUNTED ON A POLE, THE POLE SHALL BE COMPLETE WITH TWO BRACKETS PER CABINET.
 - THE HEIGHT OF THE CONTROLLER CABINET IS SPECIFIED ON THE CONTRACT PLANS.
 - CONTRACTOR SHALL FIELD DRILL THE HOLES FOR SELF-TAPPING SCREWS AFTER THE FINAL POSITION HAS BEEN DETERMINED.
- POLE BASE:**
 - THE HAND HOLE FRAME AND COVER SHALL BE A MINIMUM SIZE OF 100mmx165mm.
 - THE HAND HOLE FRAME AND COVER SHALL BE LOCATED 180° FROM THE STRAIN WIRE OR AT ONE-HALF THE ANGLE "E" WHEN TWO STRAIN WIRES ARE USED. THIS HOLE MAY BE SHOP DRILLED BY THE MANUFACTURER.
- SIGNAL HEAD MOUNTING BRACKET:**
 - WHEN POST MOUNT SIGNALS ARE CALLED FOR ON CONTRACT PLANS, THE POLE SHALL BE COMPLETE WITH TWO BRACKETS PER SIGNAL CONFIGURATION.
 - THE ONE 25mm HOLE FOR THE SIGNAL HEAD MOUNTING BRACKET SHALL BE DRILLED AND DEBURRED AFTER THE FINAL POSITION OF THE SIGNAL HEAD HAS BEEN DETERMINED. THIS HOLE MAY BE DRILLED BY MANUFACTURER.
- ANCHOR BOLTS:**
 - ANCHOR BOLT DETAILS ARE NOTED ON TES-40.
 - EACH ANCHOR BOLT SHALL HAVE A BOLT COVER.
- WELDING:**

CONNECTION SHALL BE DESIGNED FOR THE LOAD ON THE MEMBERS BUT NOT LESS THAN 100 PERCENT OF THE STRENGTH OF THE MEMBERS. MINIMUM FILLET WELD SHALL BE 4.76mm.
- INSULATORS:**

INSULATORS SHALL BE INSTALLED WHEN SECONDARY POWER IS CARRIED PAST THE SIGNAL POLE INSTALLATION. SINGLE INSULATORS SHALL ALSO BE USED TO CARRY INTERCONNECT WIRE PAST THE INSTALLATION. THE INSULATORS ALSO MAY BE MOUNTED ON EITHER SIDE OF THE POLE.
- LUMINAIRE MOUNTING BRACKET:**
 - SPREAD IS SPECIFIED ON THE CONTRACT PLANS.
 - LUMINAIRE SHALL BE CONNECTED TO THE BRACKET WITH A SLIP FIT TYPE CONNECTION.
 - BRACKET SHALL BE CONNECTED TO THE POLE SO THE STRENGTH OF THE CONNECTION EXCEEDS THE STRENGTH OF THE BRACKET.
- MESSANGER CABLE:**

THE SPAN WIRE CLAMP MAY BE MOUNTED EITHER ABOVE OR BELOW THE POLE WIRE INLET. THE POSITION OF THE SPAN WIRE CLAMP SHALL BE DETERMINED BY THE REQUIRED HEIGHT ABOVE THE PAVEMENT OF THE SIGNAL HEADS.

- △ DELETED CAST STEEL BASE AND MODIFIED GROUND TERMINAL
- △ CHANGED GROUND ROD TO 3/4"
- △ ADDED 2' MIN., CURB LINE, SEE CONTRACT PLANS, VARMINT SCREEN, REVISED SPAN WIRE CLAMP
- △ ADDED METRIC

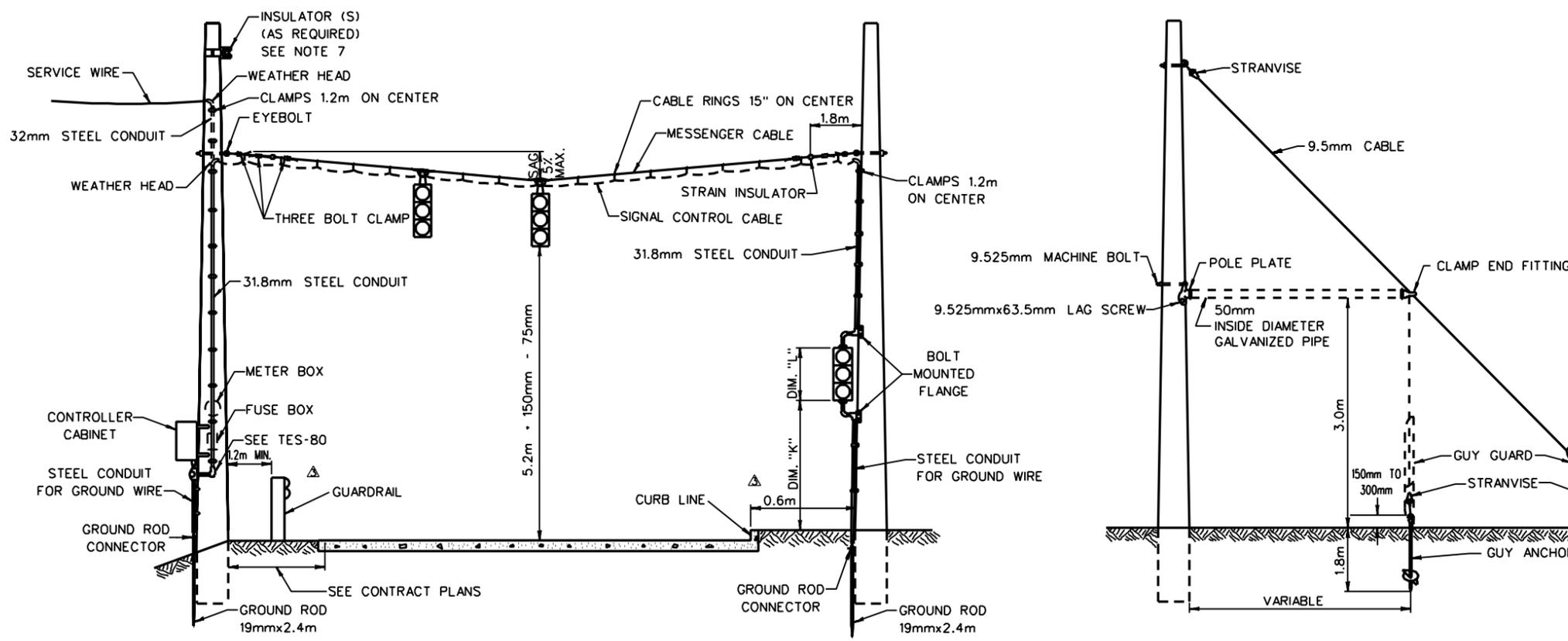
**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
STRAIN POLE
TYPES C1, C1L, C2 AND C2L**

PREPARED: 08/28/74

REVISIONS
△ 05-12-75
△ 06-18-76
△ 10-5-77
△ 09-20-84
△ 09-14-93
△ 05-04-94

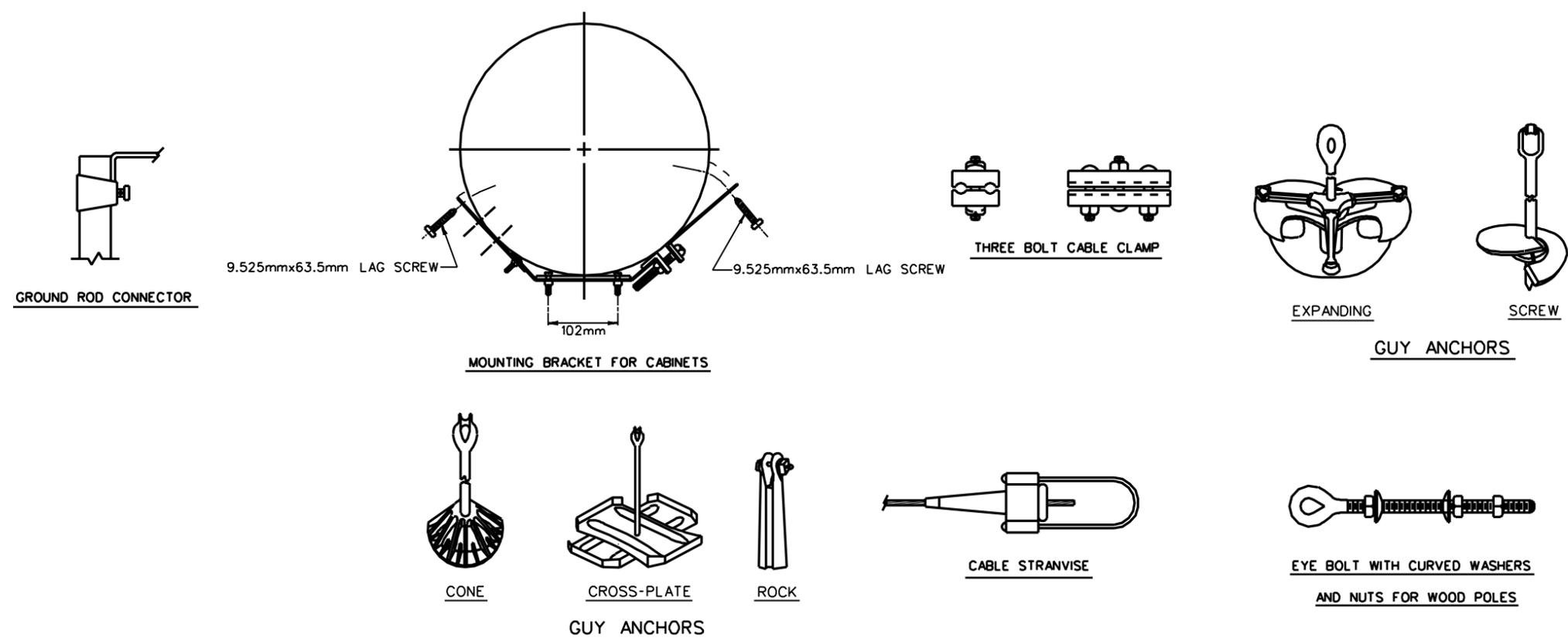
STANDARD SHEET TES-20

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



GENERAL NOTES

- SIGNAL HEADS:
 - ALL SIGNAL HEADS ON A SINGLE SPAN SHALL HAVE THE RED SECTIONS LEVEL. ALL SIGNAL HEADS SHALL HAVE A 5.2m, PLUS OR MINUS 75mm CLEARANCE FROM THE BOTTOM OF THE SIGNAL HEAD TO THE PAVEMENT DIRECTLY BELOW IT, (UNLESS OTHERWISE SPECIFIED). AT LEAST ONE HEAD, PER SPAN, SHALL BE DIRECTLY SECURED TO THE SPAN WIRE. IF APPROVED BY THE ENGINEER, THE REMAINING SIGNAL HEADS MAY BE PIPED TO ACHIEVE ROADWAY CLEARANCE.
 - POST MOUNTED SIGNAL HEADS SHALL BE MOUNTED AT THE HEIGHT SPECIFIED ON THE CONTRACT PLANS.
- POLE:
 - EACH TYPE D POLE SHALL BE COMPLETE WITH THE NECESSARY ACCESSORIES AND HARDWARE REQUIRED TO MAKE A COMPLETE INSTALLATION.
- GUY WIRE:
 - UNLESS OTHERWISE SPECIFIED ON THE CONTRACT PLANS, ALL GUY WIRE SHALL BE THE STRAIGHT DIAGONAL TYPE.
- GUY ANCHORS:
 - GUY ANCHORS MAY BE EITHER THE EXPANDING TYPE, SCREW TYPE, PLATE TYPE, CONE TYPE OR ROCK TYPE ANCHORS.
 - GUY ANCHORS SHALL BE GALVANIZED OR COATED WITH AN ASPHALT PAINT.
 - GUY ANCHORS SHALL BE OF SUCH DIMENSIONS AND STRENGTH TO WITHSTAND A TENSILE LOAD OF 3175kg AND AN A-2 (AASHTO SOIL CLASSIFICATION) TYPE SOIL.
- EYEBOLT:
 - EYEBOLT SHALL EXCEED TENSILE STRENGTH OF MESSENGER CABLE.
- CONDUIT:
 - CONDUIT FOR THE POWER SUPPLY SHALL BE FASTENED TO THE POLE WITH CONDUIT CLAMPS 1.2m ON CENTER.
 - CONDUIT CLAMPS SHALL BE FASTENED TO THE TYPE D WOOD POLE WITH WOOD SCREWS.
- INSULATORS:
 - INSULATORS SHALL BE INSTALLED WHEN SECONDARY POWER IS CARRIED PAST THE SIGNAL POLE INSTALLATION. SINGLE INSULATORS SHALL ALSO BE USED TO CARRY INTERCONNECT WIRE PAST THE INSTALLATION. THE INSULATORS ALSO MAY BE MOUNTED ON EITHER SIDE OF THE POLE.



▲ NOTE 1 AND SIGNATURE BLOCK
 ▲ CHANGED GROUND ROD TO 3/4"
 ▲ ADDED GR CLEAR, 2' MIN., SEE CONTRACT PLANS, CURB LINE
 ▲ ADDED METRIC

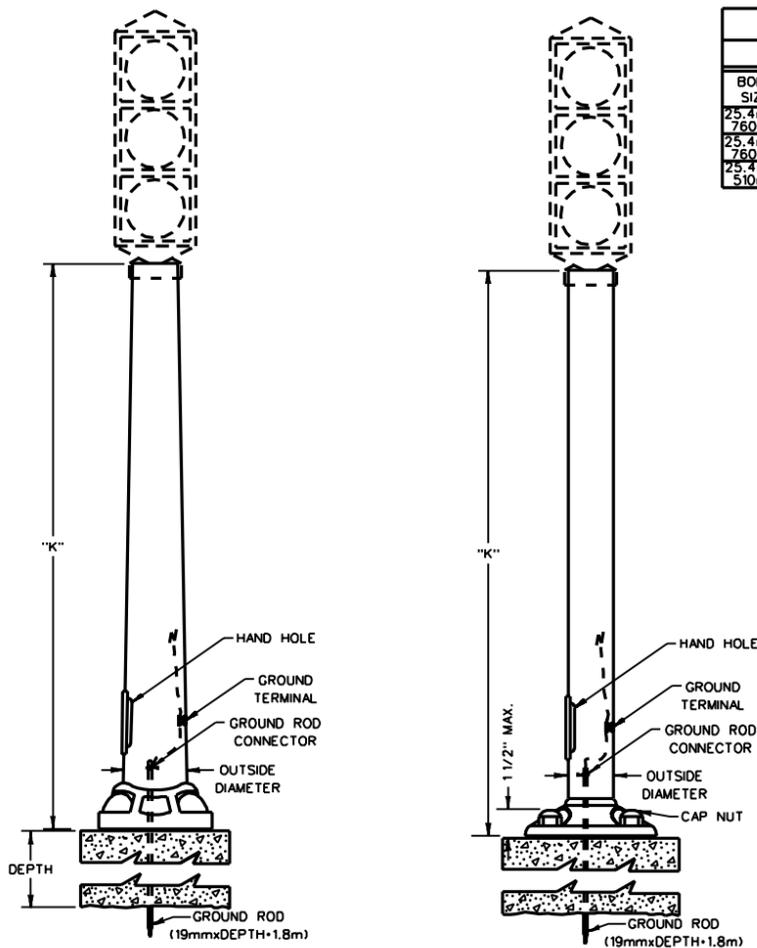
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
WOOD POLE TYPE D

PREPARED: 08/00/74

REVISIONS
▲ 10-12-76
▲ 09-20-84
▲ 09-14-93
▲ 05-02-94

STANDARD SHEET TES-23

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

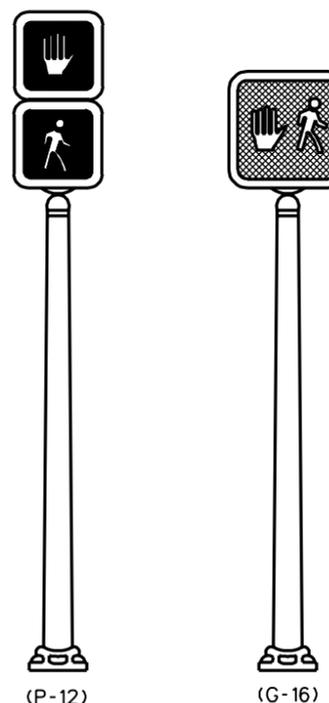
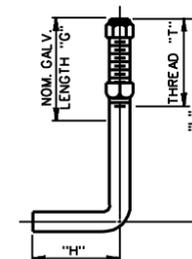


ANCHOR BOLTS						
MINIMUM DIMENSIONS						
BOLT SIZE	BOLT CIRCLE	"L"	"H"	"T"	"G"	POLE TYPE
25.4mm x 760mm	241.3mm	660mm	100mm	102mm	155mm	E-1
25.4mm x 760mm	241.3mm	660mm	100mm	102mm	155mm	E-2
25.4mm x 510mm	241.3mm	435mm	75mm	102mm	155mm	E-3

ANCHOR BOLTS

POLE TYPE	DIAM. (SIDE)	DEPTH	VOLUME (m ³)	REIN.
E-1	0.5m	1.3m	0.26m	—
E-2	0.5m	1.3m	0.26m	—
E-3	0.5m	1.3m	0.26m	—

FOOTING SIZES



PEDESTAL MOUNTING FOR PEDESTRIAN SIGNAL

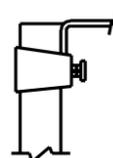


"F" & "S" DIMENSIONS SHALL BE FURNISHED BY POLE MANUFACTURER

TYPE-E1

TYPE-E2 or E3

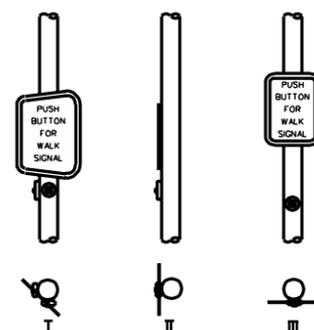
PEDESTAL BASE



GROUND ROD CONNECTOR



PEDESTAL MOUNTING FOR PEDESTRIAN PUSH BUTTON



PEDESTRIAN PUSH BUTTON AND SIGN INSTALLATION

- GENERAL NOTES:**
- SIGNAL HEADS:**
 - HEIGHT OF THE INDICATIONS SHALL BE AS NOTED ON THE CONTRACT PLANS.
 - POLE:**
 - THE WELDED CONNECTION SHALL BE DESIGNED FOR THE LOAD ON THE SHAFT BUT NOT LESS THAN 75% OF THE STRENGTH OF THE SHAFT. MINIMUM FILLET WELD SHALL BE 4.76mm.
 - DIMENSIONS "K" AND OUTSIDE DIAMETER SHALL BE NOTED ON THE CONTRACT PLANS.
 - CONDUIT SHALL EXTEND 100mm VERTICALLY UP IN THE POLE ABOVE THE FOUNDATION.
 - HAND HOLE:**
 - TYPE E-1 SHALL HAVE A MINIMUM SIZE HAND HOLE OF 75mmx125mm.
 - TYPE E-2 SHALL HAVE A MINIMUM SIZE HAND HOLE OF 75mmx125mm LOCATED AT THE BASE.
 - TYPE E-3 SHALL HAVE A MINIMUM SIZE HAND HOLE OF 75mmx125mm LOCATED AT THE BASE.
 - EACH COVER SHALL BE ATTACHED TO THE POLE BY STAINLESS STEEL SCREWS.
 - PUSH BUTTON AND SIGN:**
 - THE SIGN SHALL CONFORM TO THE SIGN DESIGNATED AS R 10-4 IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
 - THE PUSH BUTTON SHALL BE MOUNTED AT A HEIGHT OF 1.2m UNLESS OTHERWISE SPECIFIED ON CONTRACT PLANS.
 - THE SIGN SHALL BE MOUNTED IMMEDIATELY ABOVE THE PUSH BUTTON.
 - MOUNTING:**

BANDING OF SIGNAL HEAD BRACKETS TO POLES IS NOT PERMITTED UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 - CONCRETE:**
 - ALL EXPOSED CONCRETE SHALL HAVE A NORMAL FINISH.
 - ALL OUTSIDE CONCRETE CORNERS AND EDGES SHALL HAVE A 19mm CHAMFER.
 - CONCRETE TO BE RODDED OR VIBRATED WHILE POURING.
 - ALL CONCRETE SHALL BE CLASS "B".
 - FOOTINGS:**
 - ALL FOOTING IN SIDEWALKS SHALL BE FINISHED FLUSH WITH EXISTING SIDEWALKS, UNLESS OTHERWISE SPECIFIED BY THE PROJECT ENGINEER.
 - FOOTINGS MAY BE EITHER CIRCULAR OR SQUARE IN CROSS-SECTION. CIRCULAR FOOTINGS SHALL BE SQUARE FOR TOP 300mm.
 - FORMS:**
 - NO FORMS MAY EXTEND TO A DEPTH GREATER THAN 300mm UNLESS APPROVAL IS GRANTED BY THE PROJECT ENGINEER.

- △ DELETED FOUNDATION NOTE
- △ CHANGED E-3
- △ CHANGED E-3, NOTES 1 & 2
- △ CHANGED GROUND ROD TO 3/4"
- △ MODIFIED PEDESTRIAN PUSH BUTTON AND SIGN INSTALLATION
- △ DELETED PEDESTAL MNTG FOR TRAFFIC AND PEDESTRIAN SIGNAL.
- △ DELETED NOTES 1B & 1C, ADDED G-16 PED MNTG
- △ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
PEDESTAL POLES
 TYPES E-1, E-2, E-3

PREPARED: 09/06/74

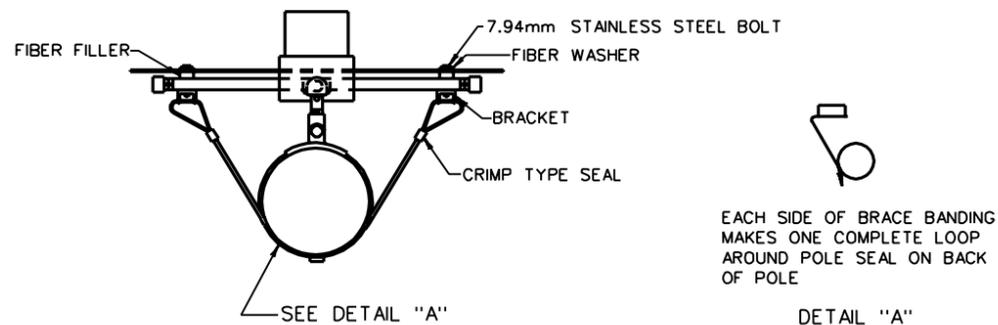
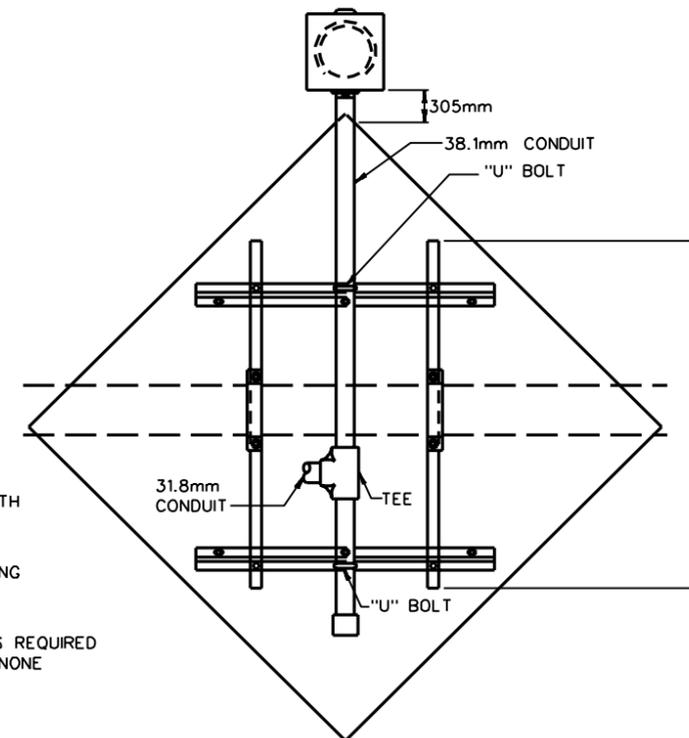
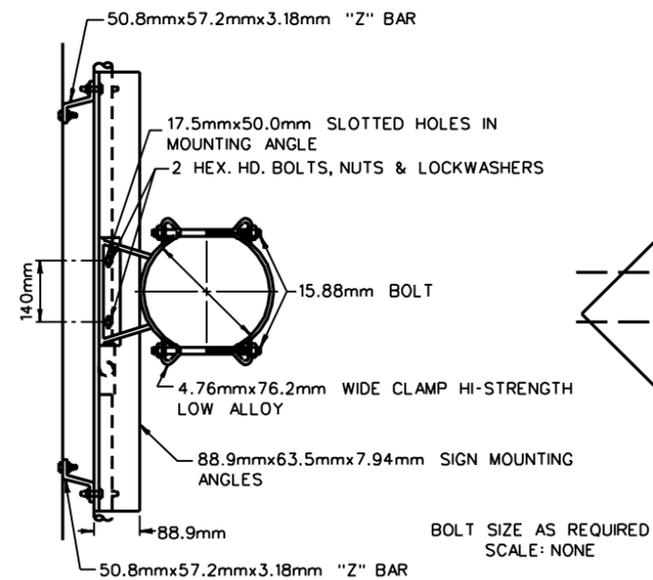
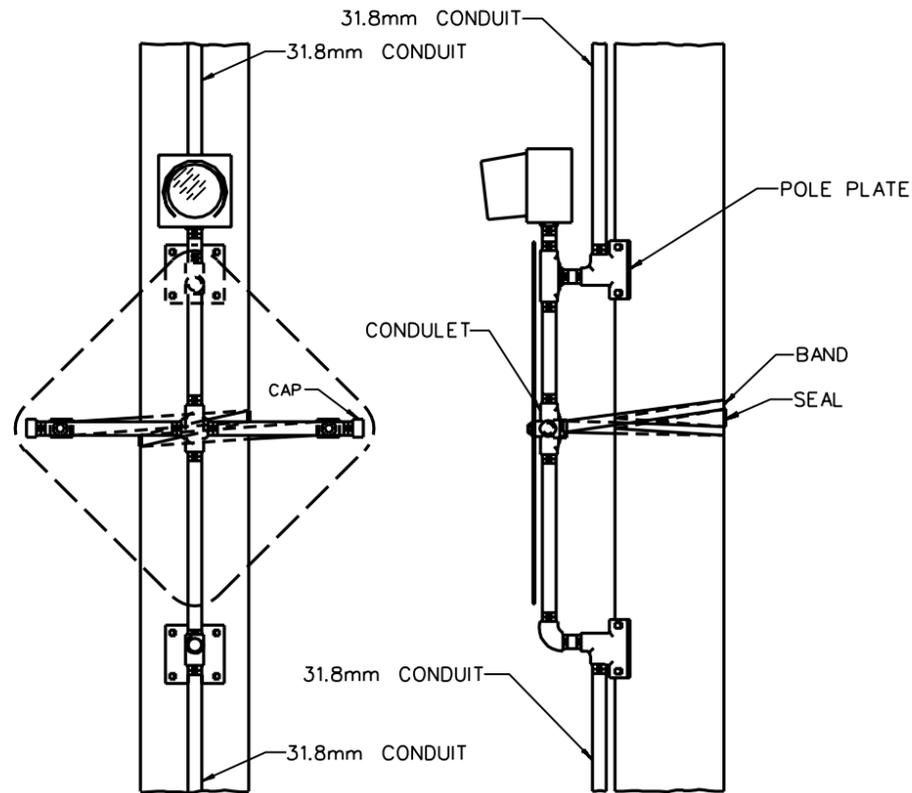
REVISIONS
△ 10-23-75
△ 10-12-76
△ 10-5-77
△ 09-20-84
△ 06-30-89
△ 02-03-93
△ 05-02-94

STANDARD SHEET TES-30

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

GENERAL NOTES:

1. TRAFFIC SIGN AND SIGNAL HEAD SIZE (12mm MIN.) WILL BE AS SHOWN ON CONTRACT PLANS.
2. ALL LENS VISORS SHALL BE OF THE "CUT-AWAY" TYPE UNLESS OTHERWISE SPECIFIED.
3. ALL CONDUIT SHALL BE 38mm DIAMETER UNLESS OTHERWISE NOTED.
4. ALL MESSENGER CABLES SHALL BE A MINIMUM OF 9.5mm.
5. BOLT AND NUT ASSEMBLIES MAY BE STAINLESS STEEL OR CADMIUM PLATED.
6. BOTTOM OF SIGN SHALL BE 2.4m MIN. TO 3.0m MAX.



FLASHER AND SIGN MOUNTING DETAIL
MAST ARM MOUNT

FLASHER AND SIGN MOUNTING DETAIL
POST MOUNT

- △ SIGNATURE BLOCK
- △ REVISED NOTE 1, ADDED NOTE 6.
- △ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
FLASHER AND SIGN
INSTALLATION

PREPARED: 06/00/68

REVISIONS
09-12-69
01-00-70
04-00-72
△ 10-12-76
△ 02-09-93
△ 05-02-94

STANDARD SHEET TES-35

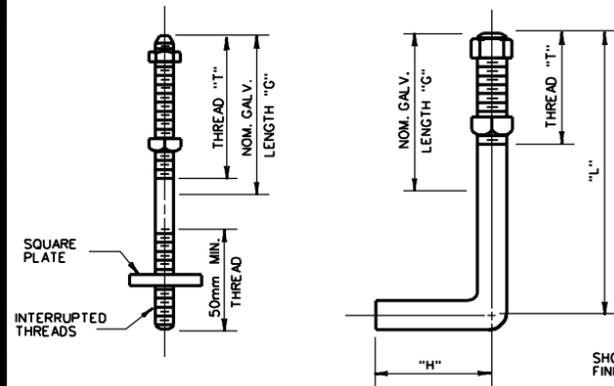
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

ANCHOR BOLTS & BOLT CHART

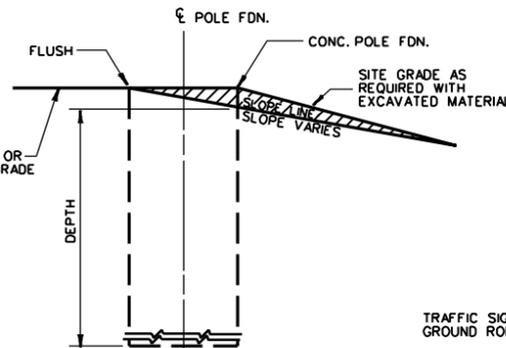
POLE-FOOTER CHART

ANCHOR BOLTS							BOLT CIRCLES (INCHES) *				
MINIMUM DIMENSIONS							POLE SIZE		B.C.		
BOLT SIZE mm	PARENT METAL mm	"L" mm	"H" mm	"T" mm	"G" mm	SIGNAL POLES A1, A1L, A2, A2L, B1, B1L, C1, C1L, C2, C2L AND STEEL LIGHTING POLES WALL THICKNESS AND OUTSIDE DIAM. mm	POLE SIZE	B.C.	POLE SIZE	B.C.	
25.4x1015.0	25.40	915.0	100.0	150	200 TO 300 MIN.	3.04 THICK. BY 165.1, 177.8, 190.5 203.2, 215.9, 228.6, 241.3, 254.0 - O.D.	3.04 THICK.	165.1	241.3	3.42 THICK.	266.7
31.75x1220.0	31.75	1070.0	150.0	150 TO 200	250 TO 300 MIN.	3.04 THICK. BY 279.4, 304.8 - O.D. 3.42 THICK. BY 254.0, 266.7, 279.4 - O.D. 3.80 THICK. BY 279.4, 4.55 THICK. BY 203.2, 215.9, 228.6, 241.3, 254.0, 6.35 THICK. BY 177.8 - O.D.	228.6	317.5	177.8	254.0	
38.10x1525.0	38.10	1375.0	150.0	200 TO 225	275 TO 300 MIN.	4.55 THICK. BY 254.0, 266.7, 279.4, 292.1, 304.8, 330.2, 342.9, 355.6 - O.D. 6.35 THICK. BY 228.6, 241.3, 254.0 - O.D.	279.4	381.0	279.4	381.0	
44.45x2285.0	44.45	2135.0	15.0	200 TO 225	275 TO 300 MIN.	6.35 THICK. BY 279.4, 292.1, 304.8, 317.5, 330.2, 342.9, 355.6 - O.D. 7.94 THICK. BY 304.8 12.70 THICK. BY 228.6 - O.D.	203.2	279.4	342.9	482.6	
50.80x2285.0	50.80	2285.0	60x200x200 PLATES	225	275 TO 300 MIN.	6.35 THICK. BY 381.0, 393.7, 406.4, 431.8, 457.2, 7.94 THICK. BY 330.2, 355.6, 381.0 - O.D. 12.70 THICK. BY 254.0, 279.4, 304.8 - O.D. 9.11 THICK. BY 330.2 - O.D.	241.3	330.2	393.7	571.5	
57.15x2440.0	57.15	2440.0	65x230x230 PLATES	250	300	7.94 THICK. BY 406.4 - O.D. 12.70 THICK. BY 317.5, 330.2 - O.D. 9.11 THICK. BY 381.0 - O.D.	254.0	342.9	406.4	596.8	

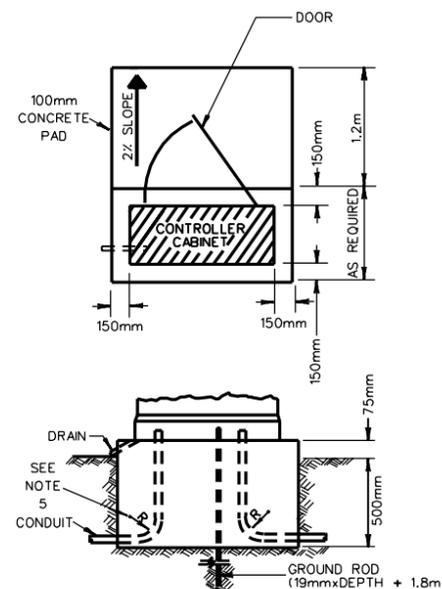
* - WHEN USING TRANSFORMER BASE(S), SEE TEL-18 FOR ANCHOR BOLT - BOLT CIRCLE IN FOUNDATION.



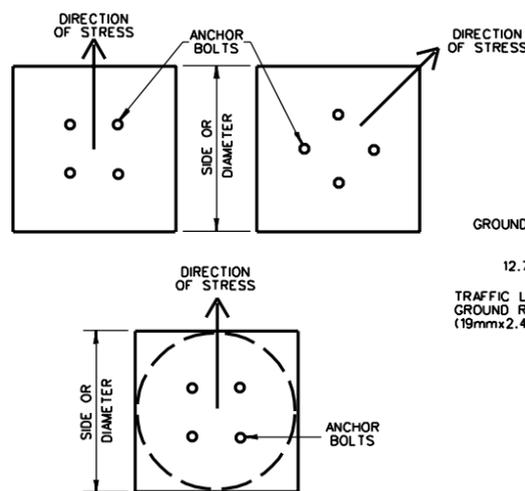
ANCHOR BOLT DETAIL



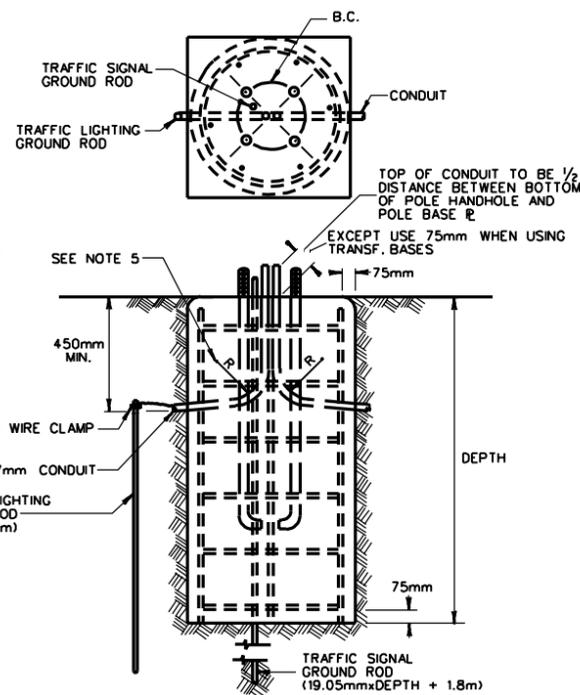
FOOTER IN SLOPE



SIGNAL CONTROLLER CABINET BASE



TOP VIEW OF FOOTER



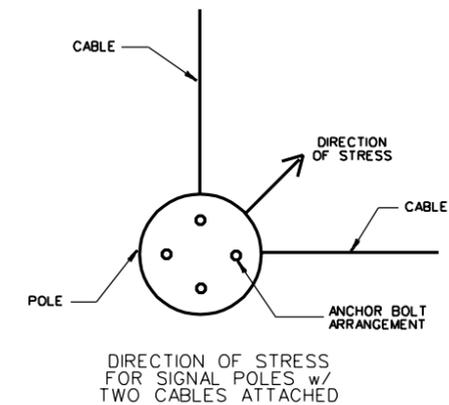
FOUNDATION DETAILS

POLE SIZE							CONCRETE FOOTING			REINFORCING STEEL	
3.04	3.42	3.80	4.55	6.35	7.94	12.70	DIA. OR SIDE METER	DEPTH METER	VOLUME (m ³)	NUMBER OF BARS	SIZE OF BARS
165.1	---	---	---	---	---	---	0.6m	1.3m	0.37	4	#13
177.8	---	---	---	---	---	---	0.6m	1.3m	0.37	4	#13
190.6	---	---	---	---	---	---	0.6m	1.4m	0.40	6	#16
203.2	---	---	---	---	---	---	0.6m	1.4m	0.40	6	#16
215.9	---	---	---	---	---	---	0.6m	1.6m	0.45	6	#16
228.6	---	---	---	---	---	---	0.6m	1.6m	0.45	6	#16
241.3	---	---	203.2	---	---	---	0.6m	1.7m	0.48	6	#19
254.0	---	---	215.9	177.8	---	---	0.6m	1.7m	0.48	6	#19
279.4	---	---	228.6	---	---	---	0.75m	1.7m	0.75	6	#19
---	---	---	241.3	---	---	---	0.75m	1.7m	0.75	6	#19
304.8	---	---	254.0	228.6	---	---	0.75m	1.9m	0.84	6	#19
---	---	---	266.7	---	---	---	0.75m	2.0m	0.88	6	#19
---	---	---	279.4	---	---	---	0.75m	2.0m	0.88	6	#19
---	254.0	---	---	---	---	---	1.0m	1.7m	1.33	6	#22
---	266.7	---	---	---	---	---	0.75m	1.6m	0.71	6	#22
---	279.4	---	---	---	---	---	0.75m	1.7m	0.75	6	#22
---	---	---	292.1	---	---	---	0.75m	2.2m	0.97	8	#19
---	---	---	304.8	---	---	---	1.0m	2.0m	1.57	8	#19
---	---	---	330.2	---	---	---	1.1m	2.0m	1.90	8	#19
---	---	---	342.9	---	---	---	1.1m	2.2m	2.09	8	#19
---	---	---	355.6	---	---	---	1.1m	2.2m	2.09	8	#19
---	---	---	---	254.0	---	---	1.0m	1.9m	1.49	8	#19
---	---	---	---	279.4	---	---	1.0m	2.2m	1.73	8	#19
---	---	---	---	292.1	---	228.6	1.0m	2.3m	1.81	8	#19
---	---	---	---	304.8	---	---	1.0m	2.3m	1.81	8	#19
---	---	---	---	317.5	---	---	1.1m	2.2m	2.09	8	#19
---	---	---	---	330.2	---	---	1.1m	2.3m	2.18	8	#19
---	---	---	---	342.9	---	---	1.1m	2.5m	2.37	8	#19
---	---	---	---	355.6	---	---	1.1m	2.6m	2.47	8	#19
---	---	---	---	381.0	---	---	1.1m	2.8m	2.66	8	#19
---	---	---	---	---	304.8	254.0	1.0m	2.6m	2.04	8	#25
---	---	---	---	---	330.2(ROUND)	---	1.0m	2.8m	2.20	8	#25
---	---	---	---	---	330.2(12SIDED)	279.4	1.0m	2.9m	2.28	8	#25
---	---	---	9.11x330.2	393.7	355.6	304.8	1.1m	2.9m	2.75	10	#25
---	---	---	---	---	---	317.5	1.1m	2.9m	2.75	10	#25
---	---	---	9.11x355.6	406.4	381.0	---	1.1m	3.1m	2.94	10	#25
---	---	---	9.11x381.0	431.8	406.4	330.2	1.1m	3.2m	3.04	10	#25
---	---	---	---	457.2	---	---	1.1m	3.4m	3.23	10	#25

NOTE: NUMBER IN PARENTHESES ARE ALTERNATE SIZE FOUNDATIONS

GENERAL NOTES

- CONCRETE:
 - ALL EXPOSED CONCRETE SHALL HAVE A NORMAL FINISH.
 - ALL OUTSIDE CONCRETE CORNERS AND EDGES SHALL HAVE A 19mm CHAMFER.
 - CONCRETE TO BE RODDED OR VIBRATED WHILE POURING.
 - ALL CONCRETE SHALL BE CLASS "B".
- STEEL:
 - REINFORCING STEEL SHALL NOT BE CLOSER THAN 75mm TO THE OUTSIDE SURFACE OF THE FOOTING AND SHALL BE TIED OR WELDED.
 - VERTICAL BARS SHALL BE TIED WITH #13 HOOP BARS 300mm ON CENTER. THE #13 HOOP BARS SHALL HAVE A 300mm MINIMUM LAP.
- FOOTINGS:
 - ALL FOOTING IN SIDEWALKS SHALL BE FINISHED FLUSH WITH THE EXISTING SIDEWALKS, UNLESS OTHERWISE SPECIFIED BY THE PROJECT ENGINEER.
 - FOOTINGS MAY BE EITHER CIRCULAR OR SQUARE IN CROSS-SECTION. CIRCULAR FOOTINGS SHALL BE SQUARE FOR THE TOP 300mm.
 - WITH PERMISSION OF THE PROJECT ENGINEER, THE DEPTH OF THE FOOTING MAY BE REDUCED 0.3m WHEN THE FOOTING IS PLACED IN A CONCRETE OR ASPHALTIC CONCRETE SIDEWALK OR PAVED SURFACE. THE FOOTING MAY BE REDUCED BY 0.3m WHEN THE FOOTING IS IN ROCK.
- FORMS:
 - NO FORMS MAY EXTEND TO A DEPTH GREATER THAN 300mm UNLESS APPROVAL IS GRANTED BY THE PROJECT ENGINEER.
- CONDUIT:
 - THE RADIUS (R) OF THE CURVE OF THE INNER EDGE OF ANY BEND SHALL NOT BE LESS THAN THE SIZE SPECIFIED IN THE N.E.C.



- △ FOUNDATIONS & REINFORCING STEEL
- △ CHANGED ANCHOR BOLTS & ADDED BOLT CIRCLES
- △ CHANGED GROUND RODS TO 3/4"
- △ ADDED PLATES
- △ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS STANDARD DETAIL STEEL POLE FOUNDATION

PREPARED: 10/00/74
REVISIONS
02/24/75
06/18/76
10/15/77
09/20/84
09-14-93
05-09-94

STANDARD SHEET TES-40

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

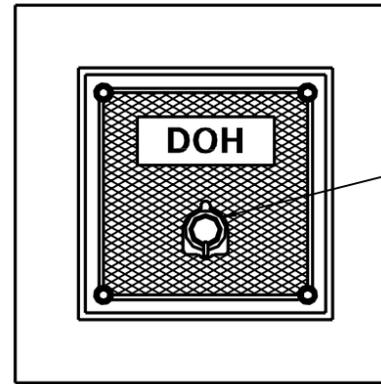
GENERAL NOTES

TYPE H AND TYPE L

1. AGGREGATE TO BE COVERED WITH 3 PLY TAR PAPER OR OTHER APPROVED VAPOR BARRIER-DRAIN HOLE TO BE BROKE THRU AFTER COMPLETION.
2. AGGREGATE SHALL BE BY VISUAL INSPECTION AN EVENLY DISTRIBUTED MIXTURE OF PARTICLES BETWEEN 9.5mm AND 19.5mm DIAMETER.
3. BOTH TYPE H AND TYPE L JUNCTION BOXES SHALL BE GRAY IRON (FRAME AND LID). GRAY IRON SHALL MEET THE REQUIREMENTS OF SECTIONS 709.10 AND 715.42.11.2 OF THE SPECIFICATIONS.
4. THESE JUNCTION BOXES SHALL HAVE TYPE H-20 LOADING CAPACITY, BE WATERPROOF, AND THE COVER FRAME FOR THE TYPE H JUNCTION BOX SHALL BE CAST INTEGRAL WITH THE CONCRETE BOX.
5. FRAMES AND COVERS ARE SHOWN AS EXAMPLES ONLY. SHOP DRAWINGS SHALL BE SUBMITTED IF DETAILS AND DIMENSIONS VARY.

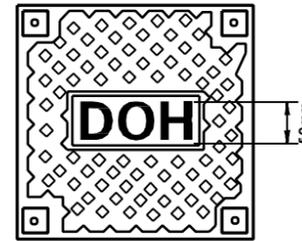
TYPE H ONLY

1. CONCRETE WHICH IS CAST IN PLACE SHALL MEET CLASS "B". CONCRETE WHICH IS PRECAST SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 21MPa IN 28 DAYS AND AN AIR CONTENT OF 7 ± 2 PERCENT.
2. ALL CONDUIT ENTRANCE HOLES TO BE THREE INCH DIAMETER WITH ONE INCH KNOCKOUT WALL. FOUR HOLES PER JUNCTION BOX ARE REQUIRED UNLESS NOTED OTHERWISE.
3. WHERE BOX IS SET IN OR POURED AGAINST PAVED AREA, A 13mm JOINT FILLER IS TO BE USED.
4. WHEN BOX IS POURED IN PLACE, IN OTHER THAN PAVED AREA, THE TOP 75mm SHALL BE FORMED.



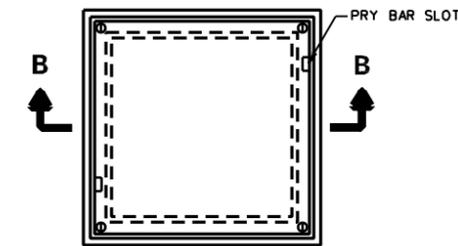
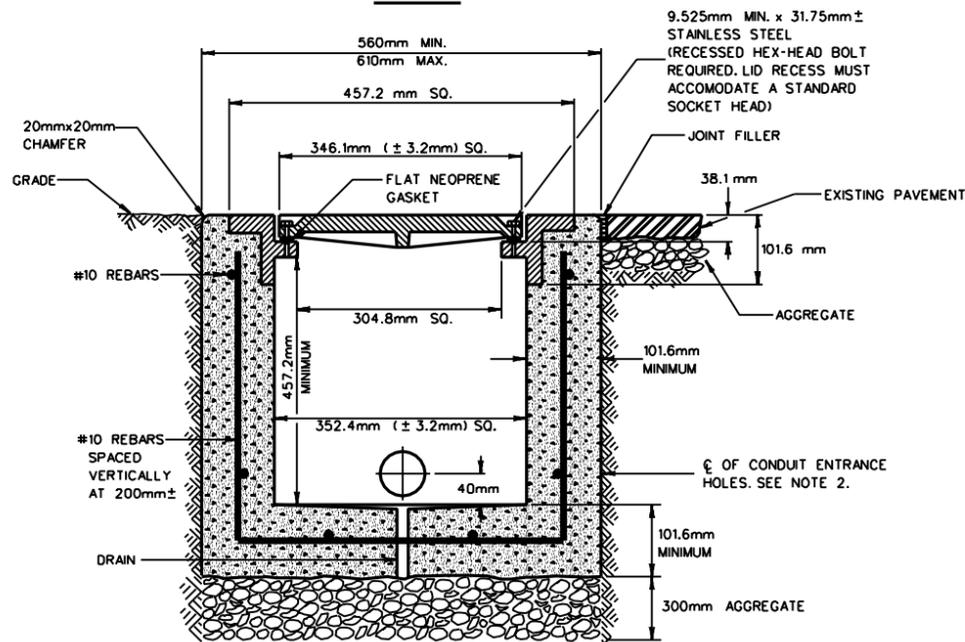
LIFT RING HANDLE (TYP.)

PLAN

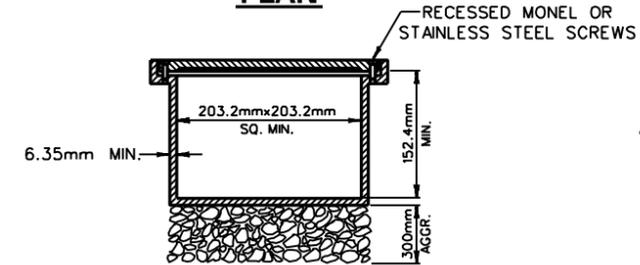


JUNCTION BOX COVER
CHECKERED, NON-SLIP SURFACE
(TYPE H AND L)

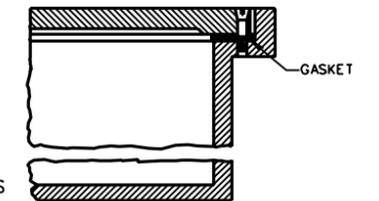
PLAN



PLAN



SECTION B-B



TWO-PIECE JUNCTION BOX
(TYPE L)

- △ SIGNATURE BLOCK
- △ ADDED DIMENSIONS ON BOLT-HOLE
- △ DELETED 3-PIECE H BOX
- △ ADDED BOLT NOTE FOR H, ADDED SCREW AND THICKNESS NOTE FOR L, ADDED CAST IRON NOTES AND CONCRETE NOTES
- △ DELETED CADMIUM PLATED BOLT
- △ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS

STANDARD DETAIL
JUNCTION BOXES

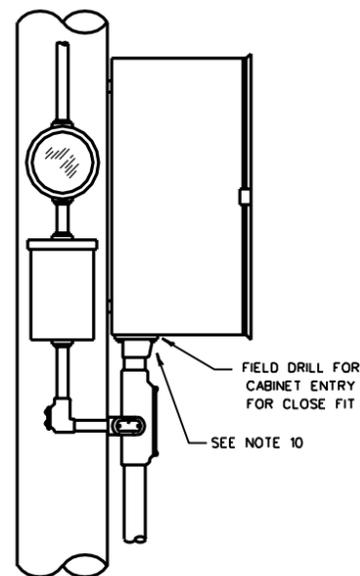
TYPE H, 255mm x 255mm
TYPE L, 200mm x 200mm

PREPARED: 05/00/67
REVISIONS

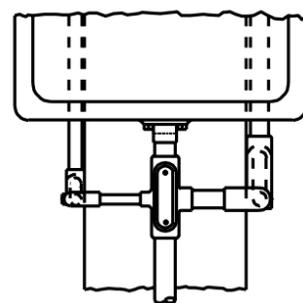
DATE	DESCRIPTION
JAN. 1970	
10-12-76	
10-5-77	
09-29-78	
01-20-93	
10-29-93	
04-11-94	

STANDARD SHEET TES-50

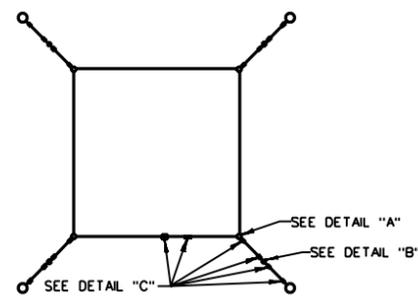
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



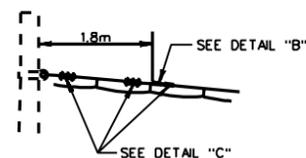
POWER SERVICE CONNECTION



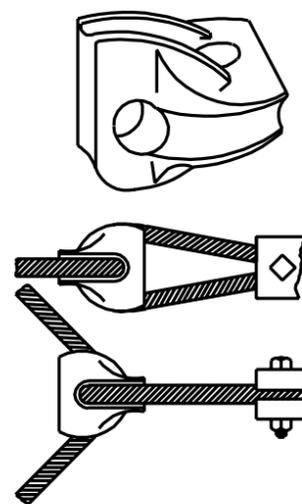
CONTROLLER OR DETECTOR SERVICE CONNECTION



SUSPENDED BOX



SPAN WIRE CONNECTIONS TO POLE



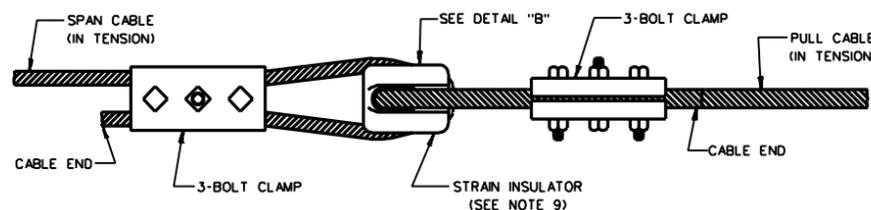
STRAND CONNECTOR
DETAIL "A"
STRAND INSULATOR MAY BE SUBSTITUTED FOR THE STRAND CONNECTOR



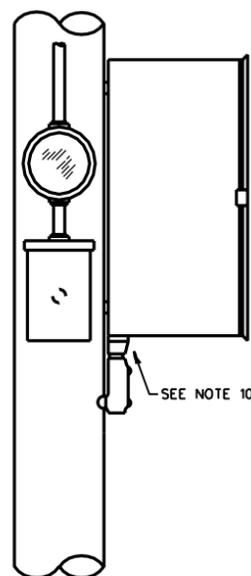
STRAND INSULATOR
DETAIL "B"



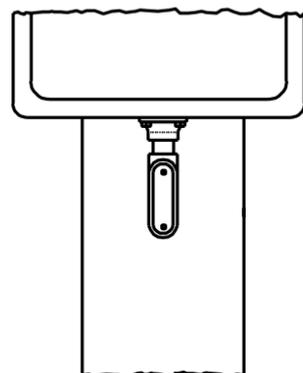
THREE BOLT CLAMP
DETAIL "C"



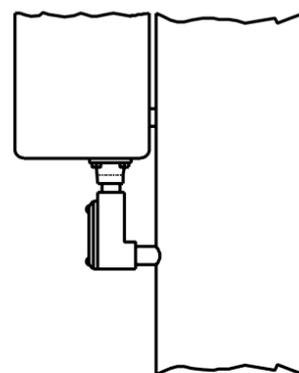
SPAN WIRE CONNECTION
CLAMP & INSULATOR



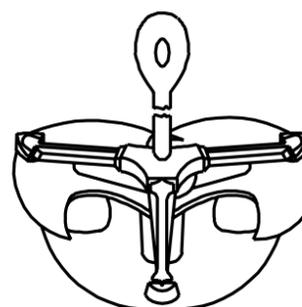
POWER SERVICE CONNECTION



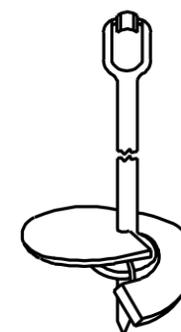
CONTROLLER OR DETECTOR SERVICE CONNECTION



INTERNAL CONDUIT CONNECTION



EXPANDING TYPE



SCREW TYPE

GUY ANCHORS

- GENERAL NOTES**
- EXTERNAL CONDUIT CONNECTIONS:
 - ALL RIGHT ANGLE CONDUIT BENDS SHALL BE MADE WITH TYPE LB CONDULETS.
 - ALL CONDUIT CARRYING CONDUCTOR CABLE SHALL BE A MINIMUM OF 50.8mm OR AS REQUIRED.
 - POWER SERVICE SHALL BE CARRIED IN 31.8mm CONDUIT.
 - CONDULET SHALL BE CONSTRUCTED OF CAST STEEL ALLOY AND SHALL BE CADMIUM-GALVANIZED. THE CONDULETS SHALL BE WATER PROOFED BY USE OF A GASKET AND A CAST STEEL ALLOY COVER.
 - INTERNAL CONDUIT CONNECTIONS:
 - TYPE LB OR LBY CONDULETS AS SHOWN.
 - ALL CONDUIT CARRYING CONDUCTOR CABLE SHALL BE A MINIMUM OF 50.8mm OR AS REQUIRED.
 - POWER SERVICE SHALL BE CARRIED IN 31.8mm CONDUIT.
 - CONDULET SHALL BE CONSTRUCTED OF CAST STEEL ALLOY AND SHALL BE CADMIUM-GALVANIZED. THE CONDULETS SHALL BE WATER PROOFED BY USE OF A GASKET AND A CAST STEEL ALLOY COVER.
 - THE HOLE MAY BE DRILLED 1.6mm DIAMETER LARGER THAN THE CONDUIT WHICH IS INSERTED IN THE HOLE. THEN THE CONNECTION SHALL BE DOUBLE-NUT SECURED ON BOTH SIDES WITH A BUSHING INSIDE. THE CONNECTION IS THEN SEALED WITH A RUBBER BASE SEALANT.
 - SUSPENDED BOX:
 - THE BOX SHALL BE SUSPENDED BY THE STRAND CONNECTOR, ILLUSTRATED IN DETAIL "A".
 - THE BOX SHALL BE INSULATED FROM THE POLES WITH THE STRAIN INSULATOR, ILLUSTRATED IN DETAIL "B".
 - ALL CONNECTIONS SHALL BE MADE WITH A THREE-BOLT CLAMP, ILLUSTRATED IN DETAIL "C".
 - STRAND CONNECTOR:

STRAND CONNECTOR SHALL BE CAPABLE OF WITHSTANDING A TENSILE LOAD OF 11,340Kg AND IT SHALL BE GROOVED FOR 9.5mm OR 12.7mm CABLE.
 - STRAIN INSULATOR:
 - THE STRAIN INSULATOR SHALL HAVE MINIMUM ULTIMATE TENSILE STRENGTH OF 4535Kg.
 - THE STRAIN INSULATOR SHALL HAVE AN OUTSIDE DIAMETER OF 63.5mm AND AN OVERALL LENGTH OF 90.0mm.
 - THREE BOLT CLAMP:
 - THE THREE BOLT CLAMP SHALL BE GALVANIZED.
 - THE CLAMP SHALL BE 142.875mm IN LENGTH AND EACH PLATE SHALL BE 9.525mm THICK AND 38.1mm WIDE.
 - THE STUD SIZE SHALL BE 11.1mm.
 - GUY ANCHORS:
 - GUY ANCHORS MAY BE EITHER THE EXPANDING TYPE OR SCREW TYPE (ILLUSTRATED), OR PLATE OR CONE TYPE ANCHORS (NOT ILLUSTRATED).
 - GUY ANCHORS SHALL BE GALVANIZED OR COATED WITH AN ASPHALT PAINT.
 - GUY ANCHORS SHALL BE OF SUCH DIMENSIONS AND STRENGTH TO WITHSTAND A TENSILE LOAD OF 3175Kg AND AN A-2 (AASHTO SOIL CLASSIFICATION) TYPE SOIL.
 - SPLICES:

SPAN WIRE SHALL BE ERECTED WITHOUT SPLICES EXCEPT AS NOTED.
 - TYPICAL FOR STRAIN INSULATOR OR STRAND CONNECTOR AS WELL AS FOR STRAIN POLE CLEVIS CONNECTION.
 - CONDUIT CONNECTION TO ALL CABINETS SHALL BE MADE THROUGH THE BASE OF THE CABINETS ONLY.

- ▲ NOTES 1B,2B,2E
- ▲ REVISED CONDULET & ADDED NOTE
- ▲ ADDED METRIC

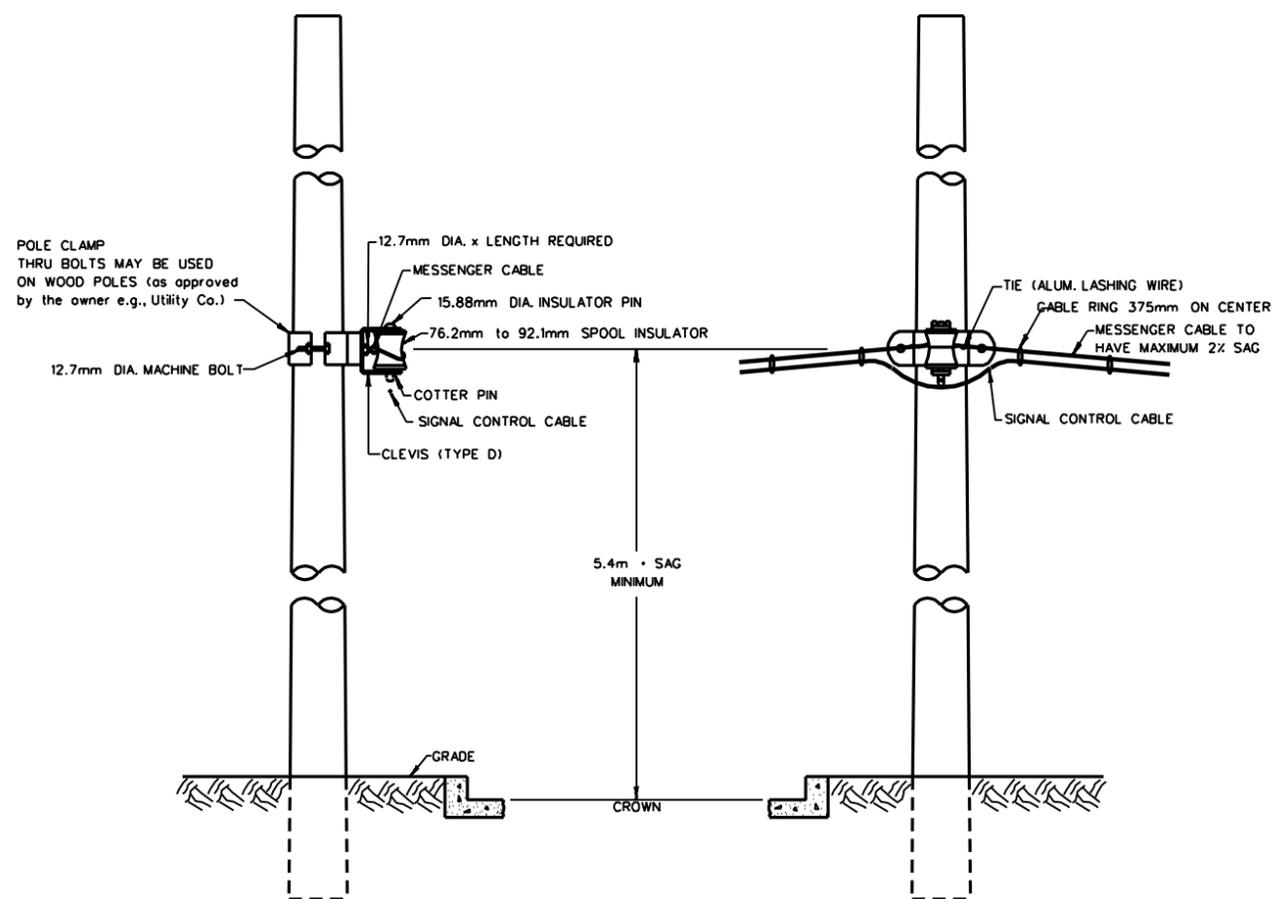
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
CONDUIT AND SPAN
WIRE CONNECTIONS

PREPARED: 08/00/67

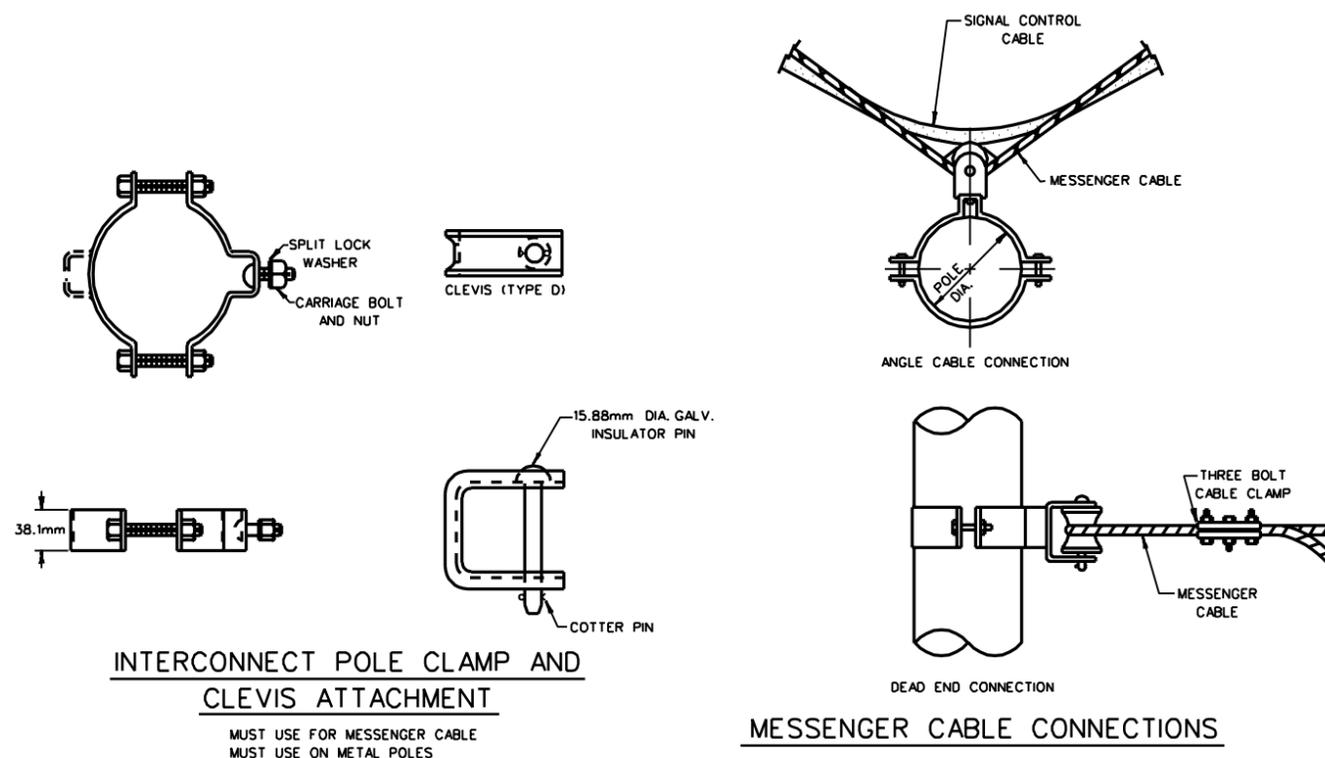
REVISIONS
11-19-69
JAN.-1970
JAN.-1971
MAY-1971
JULY-1973
▲ 12-3-76
▲ 12-10-84
▲ 04-29-94

STANDARD SHEET TES-80

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



**INTERCONNECT CABLE ATTACHMENT
METAL OR WOOD POLES**



GENERAL NOTES

THE FOLLOWING EXTRACT FROM THE NATIONAL ELECTRICAL CODE SHALL BE USED AS A GENERAL GUIDELINE. (LOCAL CONDITIONS MAY DICTATE SOME VARIANCE WITH THIS SPACING AT THE DISCRETION OF THE PROJECT ENGINEER).

SIGNAL CONDUCTOR CABLE SUPPORT ON POLES SHALL HAVE A SEPARATION OF NO LESS THAN 300mm EXCEPT WHEN PLACED ON RACKS OR BRACKETS.

SIGNAL CONDUCTOR CABLE SUPPORTED ON POLES SHALL PROVIDE A HORIZONTAL CLIMBING SPACE NOT LESS THAN FOLLOWING:

- A. SIGNAL CONDUCTOR CABLE LOCATED BELOW EXISTING POWER LINES -- 305mm FOR SECONDARY OR AS OTHERWISE DIRECTED ON THE PLANS OR BY THE LOCAL POWER COMPANY.
- B. SIGNAL CONDUCTOR CABLE LOCATED ABOVE EXISTING COMMUNICATION LINES -- 765mm.
- C. SIGNAL CONDUCTOR CABLE LOCATED BELOW EXISTING COMMUNICATION LINES -- NOT ALLOWED UNLESS OTHERWISE DIRECTED ON THE PLANS OR BY THE OWNER.

- △ REVISED FIGURE "B" vs. MESSENGER CABLE ADDED J-HOOK FOR FIGURE "B"
- △ ADDED THRU - BOLT NOTE ON POLE CLAMP
- △ DELETED FIGURE "B"
- △ DELETED FIGURE "B" CABLE AND DETAILS
- △ ADDED METRIC

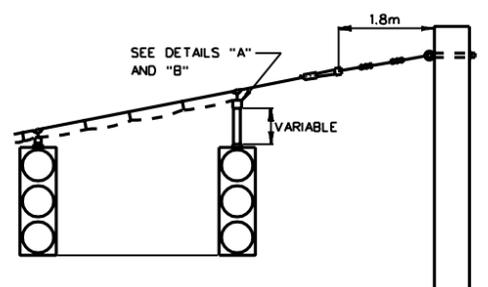
**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
INTERCONNECT**

PREPARED: 01/00/70

REVISIONS
08/0/74
06/18/76
△ 03/23/77
△ 10/5/77
△ 05/5/84
△ 01/20/93
△ 04/29/94

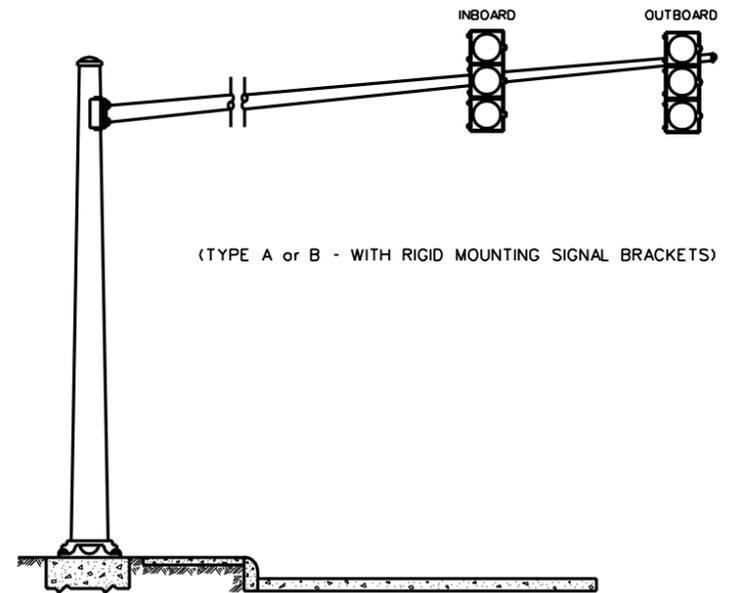
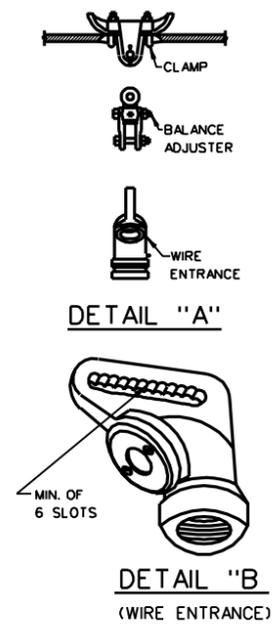
STANDARD SHEET TES-81

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

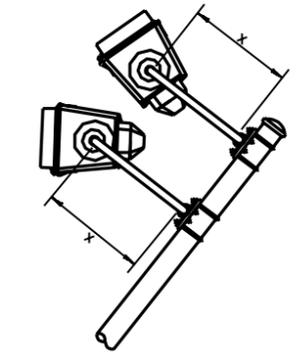


PIPING METHOD

PIPING MUST BE APPROVED BY THE ENGINEER. THE METHOD USED MUST NOT ALLOW HEADS TO TWIST OUT OF PROPER POSITION. (SEE NOTE NO. 1)



MAST ARM METHOD

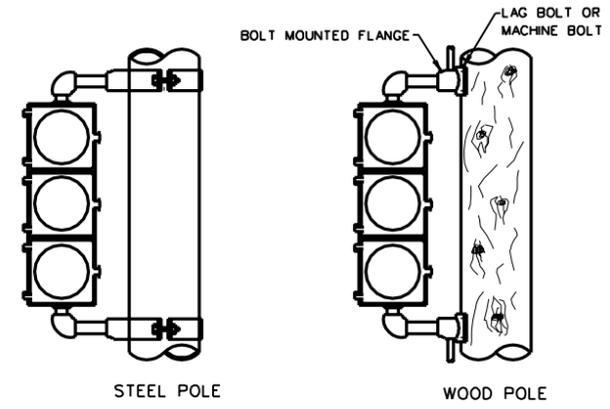


PROGRAMMED HEADS

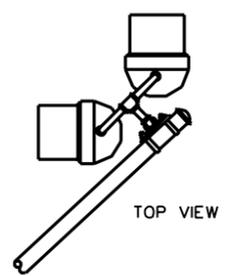
(MAST ARM - TOP VIEW)
(MAY BE EITHER OUTBOARD OR INBOARD)

GENERAL NOTES:

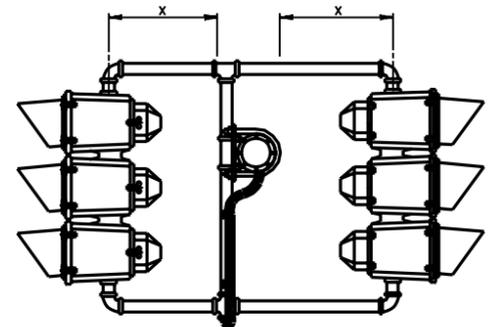
1. PIPING METHOD:
 - A. WHEN SIGNAL HEADS ARE SUSPENDED FROM SPAN WIRE OR MAST ARMS AND NOT RIGIDLY MOUNTED, AT LEAST ONE HEAD, PER SPAN OR ARM, SHALL BE DIRECTLY SECURED TO THE SPAN WIRE OR MAST ARM. IF APPROVED BY THE ENGINEER, THE REMAINING HEADS MAY BE PIPED TO ACHIEVE ROADWAY CLEARANCE. ALL SIGNAL HEADS SHALL HAVE A 5.2m, PLUS OR MINUS 75mm CLEARANCE FROM BOTTOM OF THE SIGNAL HEAD TO THE PAVEMENT DIRECTLY BELOW IT, (UNLESS OTHERWISE SPECIFIED).
2. POST MOUNT METHODS:
 - A. POST MOUNT POSITION IS NOTED ON CONTRACT PLANS.
 - B. BOLT MOUNTED POST MOUNTS SHALL BE USED ONLY ON TYPE D POLES.
 - C. BRACKET (POST) MOUNTED SIGNAL HEADS SHALL BE INSTALLED AND ARRANGED TO ALLOW FULL 180° OPENING OF THE SIGNAL HEAD ACCESS DOOR.
3. MAST ARM MOUNT METHODS:
 - A. PROGRAM TYPE SIGNAL HEADS MUST BE MOUNTED WITH THE USE OF SEPARATE CLAMPING DEVICES, EXCEPT WHEN THEY ARE USED BACK TO BACK.
 - B. ALL VIEWS OF HARDWARE MOUNTING DEVICES MAY BE APPLIED TO SINGLE HEADS AS WELL AS FOR DOUBLE HEAD INSTALLATIONS.
 - C. THE "X" DIMENSION BETWEEN THE MOUNT OF A PROGRAMMED HEAD AND THE VERTICAL PIPING OR MAST ARM MUST BE NO LESS THAN 355mm FOR DOOR CLEARANCE.
4. G-16 PEDESTRIAN HEADS
 - A. MUST BE INCANDESCENT TYPE WITH RATED BULB LIFE OF 8,000 HRS.
 - B. 69 WATT BULB TO BE USED IN "HAND" SECTION; 116 WATT BULB IN "WALKING PERSON" SECTION.
 - C. PEDESTRIAN HEAD TO BE CAST ALUMINUM AND BOTTOM HINGED.
 - D. SYMBOLIC DISPLAY TO BE MINIMUM 455mmx430mm.
 - E. HIGH IMPACT GRID TYPE VISOR REQUIRED. NO OTHER VISOR TO BE USED UNLESS OTHERWISE SPECIFIED.



POST MOUNT METHOD

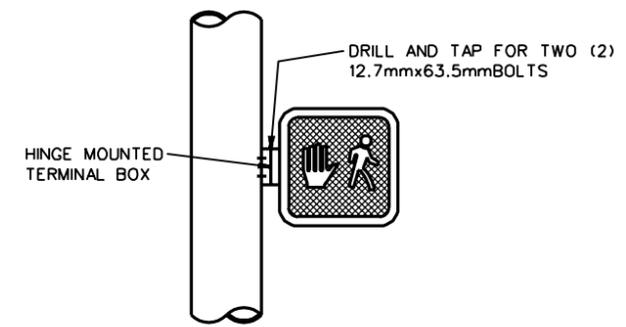


STANDARD HEADS ATTACHED TO MAST ARM

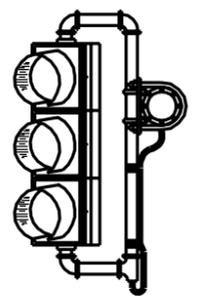


PROGRAMMED HEADS

(MAST ARM - BACK TO BACK)

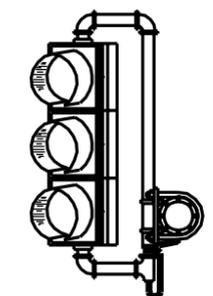


G-16 PEDESTRIAN POST MOUNT (STEEL)



TYPICAL ELEVATION

(OUTBOARD MOUNT)



TYPICAL ELEVATION

(INBOARD MOUNT)

- △ "X" DIMENSION FOR PROGRAMMED HEADS
- △ PIPING METHOD
- △ DETAIL "A"
- △ ADDED CLAMP - BALANCE ADJUSTER AND CHANGED NOTE 2
- △ ADDED G-16 POST PED POST MOUNT DETAILS AND ATTENDANT NOTE 4, RENAMED SHEET
- △ ADDED METRIC

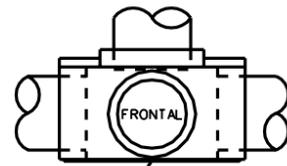
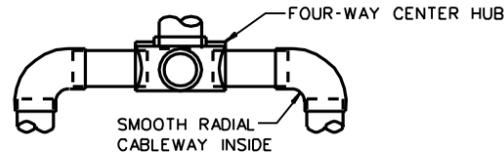
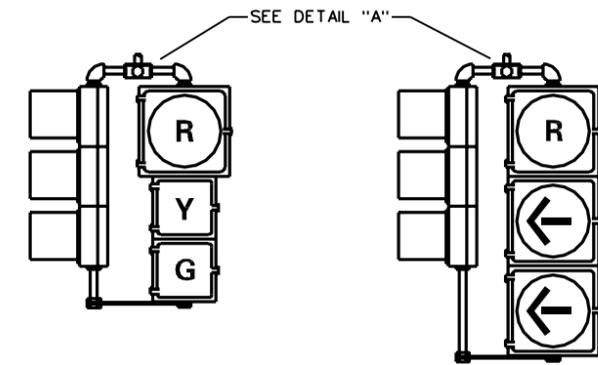
**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
VEHICULAR AND
PEDESTRIAN HEADS (G-16)**

PREPARED: 01/00/73

REVISIONS
△ 01/00/74
△ 05/12/75
△ 12/03/76
△ 10/05/77
△ 02-04-93
△ 04-29-94

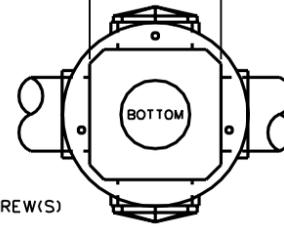
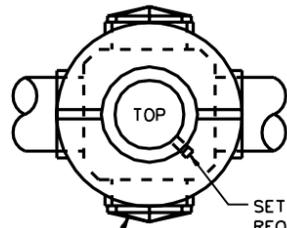
STANDARD SHEET TES-90

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



REMOVABLE COVER PLATE
W/WATER SEAL

JB OPENING
82.5mm
SQUARE MIN.

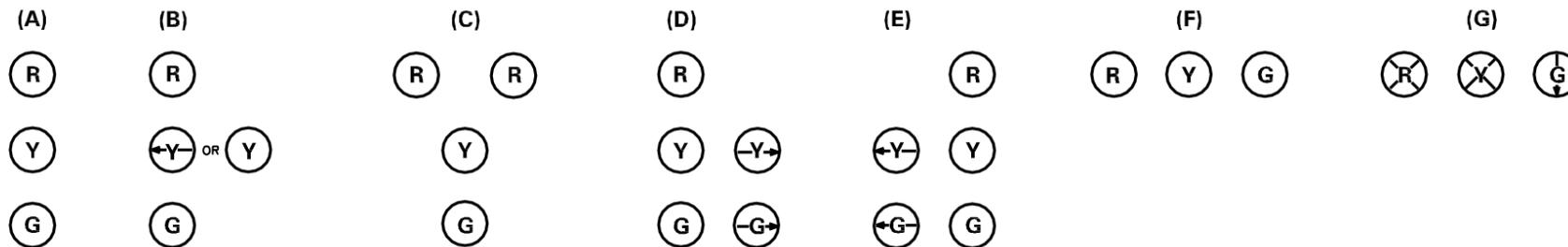


DETAIL "A"

GENERAL NOTES

- COMBINATION SIGNAL HEADS:
 - TWO-WAY, THREE-WAY, AND FOUR-WAY SIGNAL HEAD ASSEMBLIES SHALL HAVE THE RED SECTIONS LEVEL. IN SUCH CASES THE BOTTOM OF THE LOWEST SIGNAL HEAD SHALL BE 5.2m (PLUS OR MINUS 75mm) ABOVE THE PAVEMENT DIRECTLY BELOW IT, UNLESS OTHERWISE SPECIFIED.
 - THE BOTTOM HORIZONTAL BRACKET OF THE SIGNAL HEAD ASSEMBLIES SHALL BE ON THE BOTTOM OF THE LOWEST HEAD.
 - PIPING TO COMPENSATE FOR DIFFERENT LENGTH SECTIONS SHALL BE DONE AT THE BOTTOM AS SHOWN ON TES-90. THE PIPE SHALL BE 38.1mm GALVANIZED STEEL PIPE PAINTED TO MATCH SIGNAL HEADS.
- LENSE ARRANGEMENT:
 - LENSE ARRANGEMENT (A) IS TYPICAL FOR DUAL INDICATIONS ON STANDARD LANE TREATMENT.
 - LENSE ARRANGEMENT (B) IS TYPICAL FOR EXCLUSIVE (PROTECTED) LEFT TURN MOVEMENTS.
 - LENSE ARRANGEMENT (C) IS TYPICAL FOR SPECIAL USE LANE TREATMENT WHERE ONLY ONE SIGNAL HEAD IS USED TO CONTROL THE LANE.
 - LENSE ARRANGEMENT (D) IS TYPICAL FOR SITUATION ALLOWING A RIGHT TURN ON RED THAT IS EXCLUSIVE (PROTECTED).
 - LENSE ARRANGEMENT (E) IS TYPICAL FOR SITUATION ALLOWING PROTECTED AND PERMISSIVE LEFT TURN MOVEMENTS DURING THE DIFFERENT PHASES.
 - LENSE ARRANGEMENT (F) IS TYPICAL FOR DUAL INDICATIONS ON STANDARD LANE TREATMENT WHERE THERE IS A VERTICAL SIGHT DISTANCE OR OBSTRUCTION PROBLEM.
 - LENSE ARRANGEMENT (G) IS USED FOR REVERSIBLE LANE SITUATIONS.
- SUPPORT HARDWARE:
 - ALL UPPER SIGNAL SUPPORT HARDWARE AND PIPING UP TO, AND INCLUDING THE WIRE INLET FITTING MUST BE FERROUS METAL FOR SIGNAL DISPLAYS OF TWO OR MORE HEADS.
 - FOUR-WAY CENTER HUB REQUIRED FOR ALL APPLICATIONS.

TYPICAL COMBINATIONS IN TWO-WAY AND FIVE SECTION ASSEMBLIES



TYPICAL ARRANGEMENTS OF LENSES IN FACES

- △ WHOLE SHEET
- △ LABELED UPPER LEFT & DELETED CLEARANCE INTERVALS
- △ ADDED DETAIL "A" AND NOTE 3.
- △ ADDED METRIC

**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
SIGNAL FACES AND
MOUNTING HARDWARE**

PREPARED: 01/00/73

REVISIONS
△ 12/03/76
△ 12/10/84
△ 12/23/93
△ 04/29/94

STANDARD SHEET TES-91

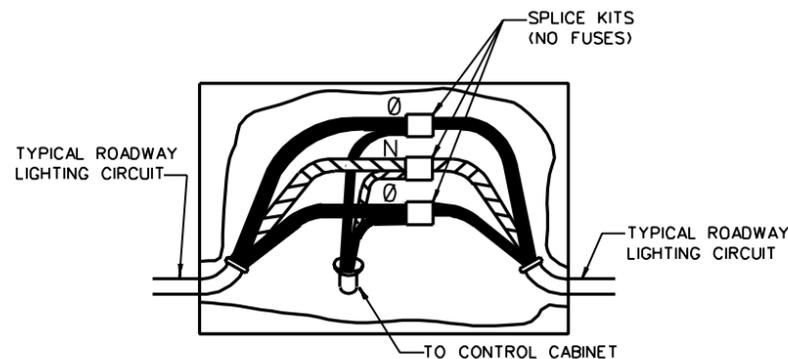
PUBLIC ROADS DIV.	STATE DST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

SIGN LIGHTING CONTROL CABINET WIRING DIAGRAMS

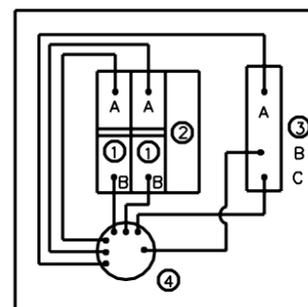
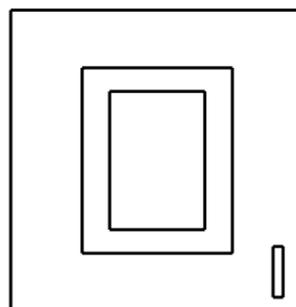
(FOR USE WITH ROADWAY LIGHTING POWER SOURCE)

NOTE
1. COMPONENTS SHALL BE SIZED AS REQUIRED ACCORDING TO LOAD.

GENERAL
DETAIL OF THIS SHEET SHALL APPLY TO EACH OVERHEAD SIGN STRUCTURE THAT SUPPORTS EXTERNALLY ILLUMINATED SIGNS POWERED FROM A ROADWAY LIGHTING CIRCUIT.
ADDITIONAL NOTES APPLICABLE TO THIS SHEET MAY BE FOUND ON STANDARD SHEETS TE6-3B, TE6-3C, AND TE6-3D.



120/240 VOLT JUNCTION BOX DETAIL



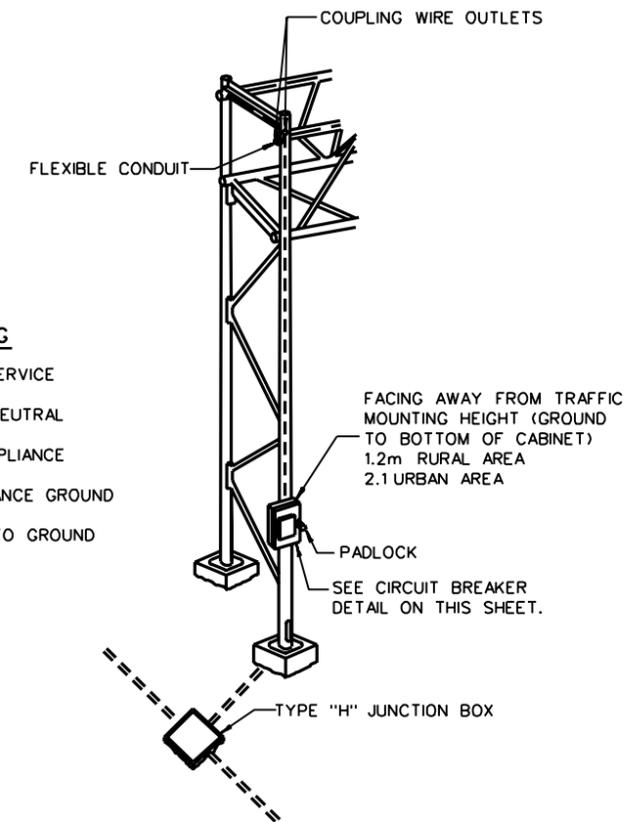
120 or 240 VOLT CONTROL CABINET

LEGEND

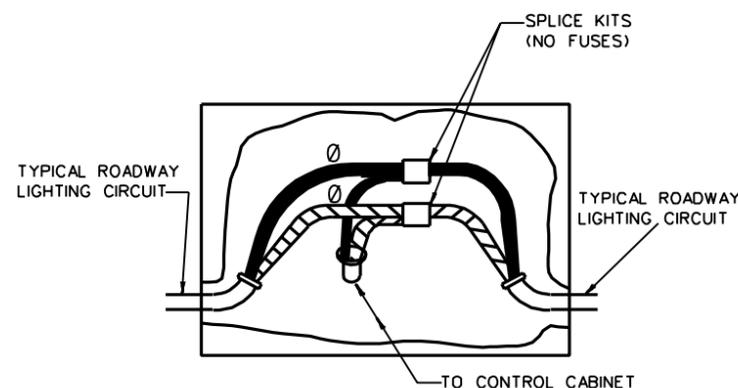
1. CIRCUIT BREAKER, SEE NOTE 1.
2. SPACE FOR FUTURE BREAKER
3. SOLID NEUTRAL GROUND BAR
4. CONDUIT HUB (POLE TYPE) (2" CHASE NIPPLE)

WIRING

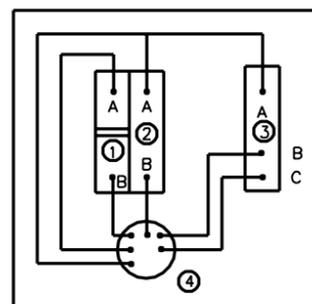
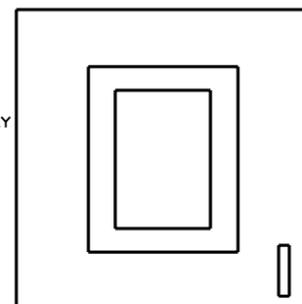
- 1A - LINE SERVICE
- 3A - LINE NEUTRAL
- 1B - TO APPLIANCE
- 3B - APPLIANCE GROUND
- 3C - LINE TO GROUND



TYPICAL INSTALLATION



480 VOLT * JUNCTION BOX DETAIL



480 VOLT * CONTROL CABINET

LEGEND

1. CIRCUIT BREAKER, SEE NOTE 1.
2. SPACE FOR FUTURE BREAKER
3. SOLID NEUTRAL GROUND BAR
4. CONDUIT HUB (POLE TYPE) (2" CHASE NIPPLE)

WIRING

- 1A - LINE SERVICE
- 3A - LINE NEUTRAL
- 1B - TO APPLIANCE
- 3B - APPLIANCE GROUND
- 3C - LINE TO GROUND

⚠ DELETED UNIVERSAL QUICK DISCONNECT
 ⚠ CHANGED TO WIRING AT TOP
 ⚠ ADDED METRIC

(*) FOR 480 VOLT UNGROUNDED SYSTEM BOTH WIRES ARE PHASE WIRES WITHOUT ANY NEUTRAL WIRE.

(*) FOR 480 VOLT UNGROUNDED SYSTEMS, THE SECOND BREAKER IS INSTALLED AND WIRE LEAD 3A BECOMES 2A (A PHASE WIRE), WIRE 2B PARALLELS WIRE 1B.

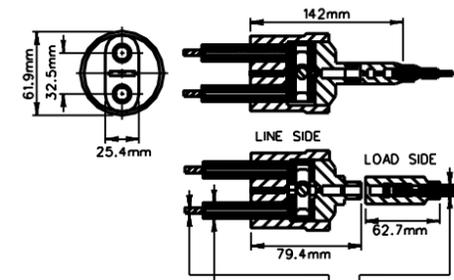
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
SIGN LIGHTING WITH
ROADWAY LIGHTING

PREPARED: 01/20/75

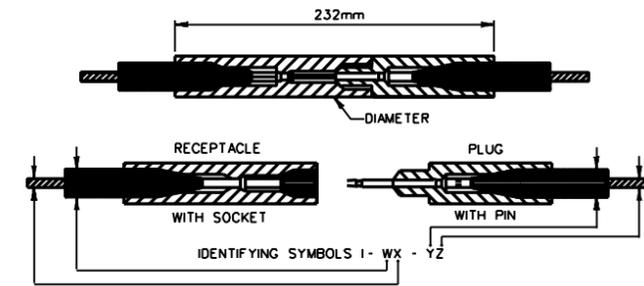
REVISIONS
07-22-76
12-10-76
04-29-94

STANDARD SHEET TEL-06

CABLE CONNECTOR KITS TYPES 1 THRU 6



CABLE DIAMETER MIN. MAX.	SYMBOL FOR (W)	COPPER CONDUCTOR(AWG)		SYMBOL FOR (X)	CABLE DIAMETER MIN. MAX.	SYMBOL FOR (Y)	COPPER CONDUCTOR(AWG)		SYMBOL FOR (Z)
		CONCENTRIC STRANDED	SOLID				CONCENTRIC STRANDED	SOLID	
4.95mm 6.60mm	B	-	8.39mm2	6	3.05mm 4.06mm	S	2.06mm2, 1.29mm2	1.29mm2, 2.06mm2	8
6.35mm 8.38mm	C	8.39mm2	17.42mm2	4	3.94mm 5.21mm	A	5.23mm2, 3.29mm2	8.39mm2, 5.23mm2	6
8.13mm 9.65mm	DA	17.42mm2	27.10mm2	3	4.95mm 6.60mm	B	8.39mm2	17.42mm2	4
9.40mm 10.92mm	DB	27.10mm2	-	2	6.35mm 8.38mm	C	-	-	3
10.67mm 12.83mm	EA	43.23mm2	-	1	8.13mm 10.92mm	D	-	-	2
12.57mm 14.86mm	EB	56.13mm2	-	0	-	-	-	-	-
14.61mm 17.40mm	FA	70.32mm2	-	10	-	-	-	-	-
17.15mm 19.94mm	FB	88.39mm2	-	20	-	-	-	-	-



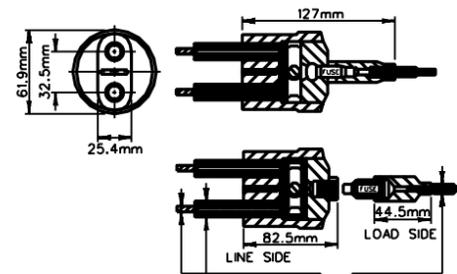
TO SPECIFY THE PROPER KIT FOR AN INSTALLATION SELECT FROM THE TABLES BELOW THE SYMBOLS WHICH COINCIDE WITH THE REQUIREMENTS AND SUBSTITUTE FOR (W,X) (Y,Z) RESPECTIVELY.

CABLE DIAMETER		SYMBOL FOR X AND Z	CONDUCTOR SIZE AWG		SYMBOL FOR X AND Z
MIN.	MAX.		CONCENTRIC STRANDED	SOLID	
4.95mm	6.60mm	BX	-	-	-
6.35mm	8.38mm	CX	8.39mm2	17.42mm2	4
8.13mm	10.92mm	DX	17.42mm2	27.10mm2	3
10.67mm	14.86mm	E	-	-	-
14.61mm	19.94mm	F	-	-	-
19.69mm	25.02mm	G	-	-	-
24.77mm	28.58mm	H	-	-	-

X MOLDED RUBBER ADAPTERS ARE A PART OF THESE KITS FOR SMALL DIAMETER CAVES.

EXAMPLE

IF THE INSTALLATION REQUIRES A RECEPTACLE FOR 17.42mm2 STRANDED CONDUCTOR AND A CABLE DIAMETER OF 16.7mm AND A PLUG FOR 8.39mm2 SOLID CONDUCTOR AND A CABLE DIAMETER OF 11.7mm, THE KIT REQUIRED WILL BE I-F3-E6.



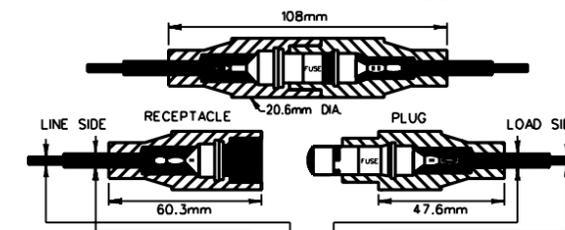
CABLE DIAMETER MIN. MAX.	SYMBOL FOR (W)	COPPER CONDUCTOR(AWG)		SYMBOL FOR (X)	CABLE DIAMETER MIN. MAX.	SYMBOL FOR (Y)	COPPER CONDUCTOR(AWG)		SYMBOL FOR (Z)
		CONCENTRIC STRANDED	SOLID				CONCENTRIC STRANDED	SOLID	
4.95mm 6.60mm	B	-	8.39mm2	6	3.05mm 4.06mm	S	2.06mm2, 1.29mm2	1.29mm2, 2.06mm2	8
6.35mm 8.38mm	C	8.39mm2	17.42mm2	4	3.94mm 5.21mm	A	5.23mm2, 3.29mm2	8.39mm2, 5.23mm2	6
8.13mm 9.65mm	DA	17.42mm2	27.10mm2	3	4.95mm 6.60mm	B	8.39mm2	17.42mm2	4
9.40mm 10.92mm	DB	27.10mm2	-	2	6.35mm 8.38mm	C	-	-	3
10.67mm 12.83mm	EA	43.23mm2	-	1	8.13mm 10.92mm	D	-	-	2
12.57mm 14.86mm	EB	56.13mm2	-	0	-	-	-	-	-
14.61mm 17.40mm	FA	70.32mm2	-	10	-	-	-	-	-
17.15mm 19.94mm	FB	88.39mm2	-	20	-	-	-	-	-

EXAMPLE

IF THE LINE OUTSIDE DIAMETER (W) IS 10.7mm AND THE CONDUCTOR (X) IS 17.42mm2 STRANDED, AND THE LOAD SIDE OUTSIDE DIAMETER (Y) IS 7.4mm AND THE CONDUCTOR (Z) IS 3.29mm2 STRANDED THE KIT REQUIRED WILL BE II-DB3-C6.

TYPE 2

FUSED "Y" CONNECTOR KIT FOR POLE BASE INSTALLATION



CABLE DIAMETER MIN. MAX.	SYMBOL FOR (W) AND (Y)	CONDUCTOR SIZE AWG		SYMBOL FOR (X) AND (Z)
		CONCENTRIC STRANDED	SOLID	
2.79mm 2.79mm	T	2.06mm2, 1.29mm2	1.29mm2, 2.06mm2	8
3.05mm 4.06mm	S	5.23mm2, 3.29mm2	8.39mm2, 5.23mm2	6
3.94mm 5.21mm	A	8.39mm2	17.42mm2	4
4.95mm 6.60mm	B	17.42mm2	27.10mm2	3
6.35mm 8.38mm	C	-	-	-
8.13mm 10.92mm	D	-	-	-

EXAMPLE

IF THE LINE OUTSIDE DIAMETER (W) IS 10.7mm AND THE CONDUCTOR (X) IS 17.42mm2 STRANDED, AND THE LOAD SIDE OUTSIDE DIAMETER (Y) IS 7.4mm AND THE CONDUCTOR (Z) IS 3.29mm2 STRANDED, THE KIT REQUIRED WILL BE VI-D3-C6.

TYPE 6

FUSED IN-LINE CONNECTOR KIT FOR JUNCTION BOX INSTALLATION

△ SIGNATURE BLOCK
▲ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS

STANDARD DETAIL

ELECTRICAL CABLE CONNECTOR KITS

PREPARED: 07/18/75

REVISIONS
12-10-76
04-29-94

STANDARD SHEET TEL-09A

TYPE 1

IN-LINE SELF-LOCKING CONNECTOR KIT FOR PULL BOX INSTALLATION

(*) WHEREVER JUNCTION BOXES ARE USED FOR WIRE PULLING PURPOSES ONLY.

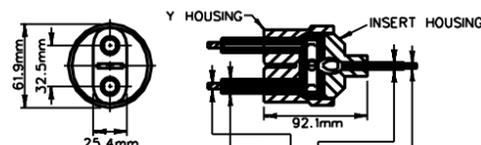


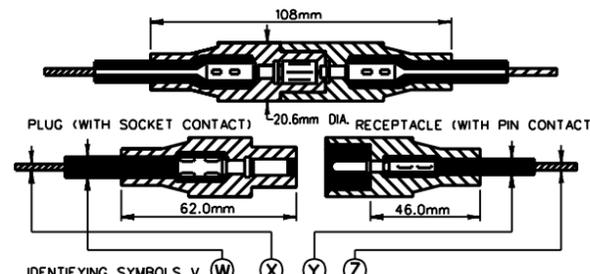
TABLE (W)		TABLE (X)		TABLE (Y)		TABLE (Z)	
MIN.	MAX.	CONCENTRIC STRANDED	SOLID	MIN.	MAX.	CONCENTRIC STRANDED	SOLID
4.95mm	6.60mm	-	8.39mm2	3.05mm	4.06mm	2.06mm2, 1.29mm2	1.29mm2, 2.06mm2
6.35mm	8.38mm	8.39mm2	17.42mm2	3.94mm	5.21mm	5.23mm2, 3.29mm2	8.39mm2, 5.23mm2
8.13mm	9.65mm	17.42mm2	27.10mm2	4.95mm	6.60mm	8.39mm2	17.42mm2
9.40mm	10.92mm	27.10mm2	-	6.35mm	8.38mm	17.42mm2	27.10mm2
10.67mm	12.83mm	43.23mm2	-	8.13mm	10.92mm	-	-
12.57mm	14.86mm	56.13mm2	-	10.67mm	14.86mm	43.23mm2	-
14.61mm	17.40mm	70.32mm2	-	14.61mm	19.94mm	56.13mm2	-
17.15mm	19.94mm	88.39mm2	-	-	-	70.32mm2	-
						88.39mm2	-

EXAMPLE

IF THE TWIN CABLE OUTSIDE DIAMETER (W) IS 13.7mm AND THEIR CONDUCTOR (X) IS 43.23mm2 STRANDED, AND THE SINGLE CABLE OUTSIDE DIAMETER (Y) IS 7.4mm AND THE CONDUCTOR (Z) IS 3.29mm2 STRANDED, THE KIT REQUIRED WILL BE IV-EB1-C6.

TYPE 4

UNFUSED "Y" CONNECTOR KIT FOR PULL BOX INSTALLATION



CABLE DIAMETER MIN. MAX.	SYMBOL FOR (W) AND (Y)	CONDUCTOR SIZE AWG		SYMBOL FOR (X) AND (Z)
		CONCENTRIC STRANDED	SOLID	
3.05mm 4.06mm	S	2.06mm2, 1.29mm2	1.29mm2, 2.06mm2	8
3.94mm 5.21mm	A	5.23mm2, 3.29mm2	8.39mm2, 5.23mm2	6
4.95mm 6.60mm	B	8.39mm2	17.42mm2	4
6.35mm 8.38mm	C	17.42mm2	27.10mm2	3
8.13mm 10.92mm	D	-	-	-

EXAMPLE

IF THE INSTALLATION REQUIRES A PLUG FOR A CABLE DIAMETER OF 9.6mm AND A 8.39mm2 STRANDED CONDUCTOR, AND A RECEPTACLE FOR A CABLE DIAMETER OF 6.9mm, AND A 2.06mm2 STRANDED CONDUCTOR, THE KIT REQUIRED WILL BE V-D4-C6.

TYPE 5

UNFUSED IN-LINE CONNECTOR KIT FOR JUNCTION BOX INSTALLATION

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

CABLE CONNECTOR KITS

TYPE 7 THRU 9

TYPE 7 CABLE CONNECTOR KITS

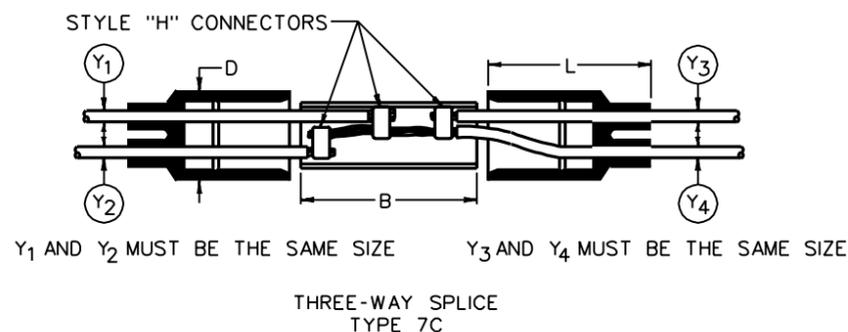
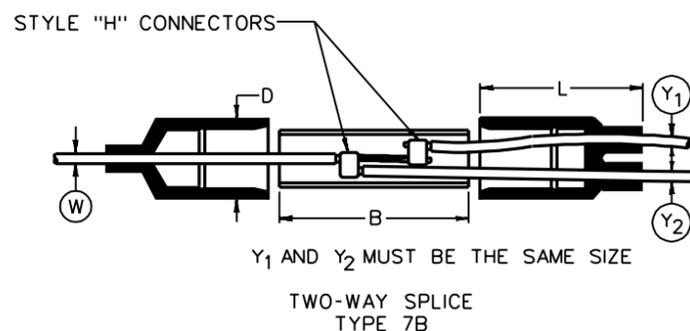
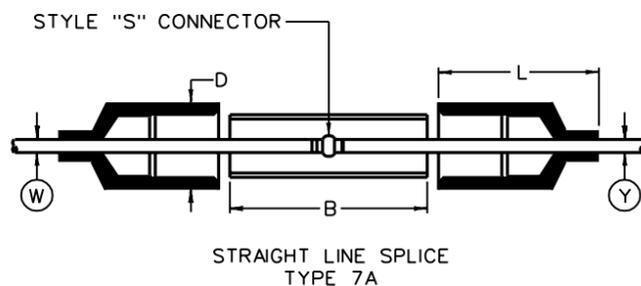
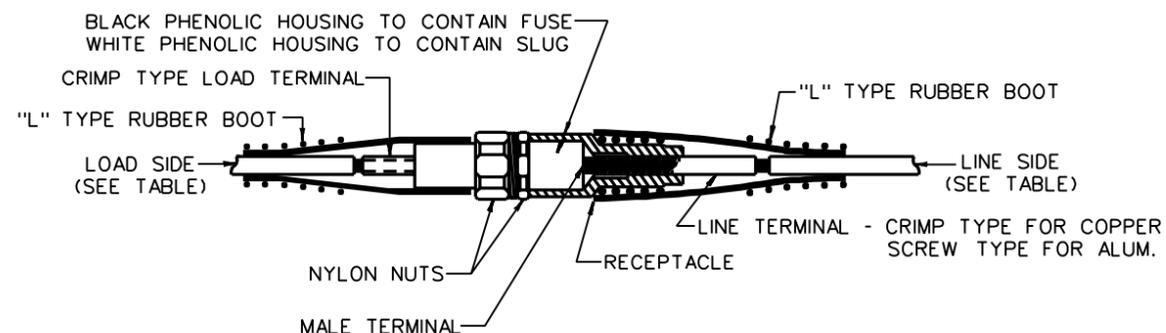


TABLE OF NOMINAL TYPE 7 KIT
STYLE VARIATIONS REQUIRED

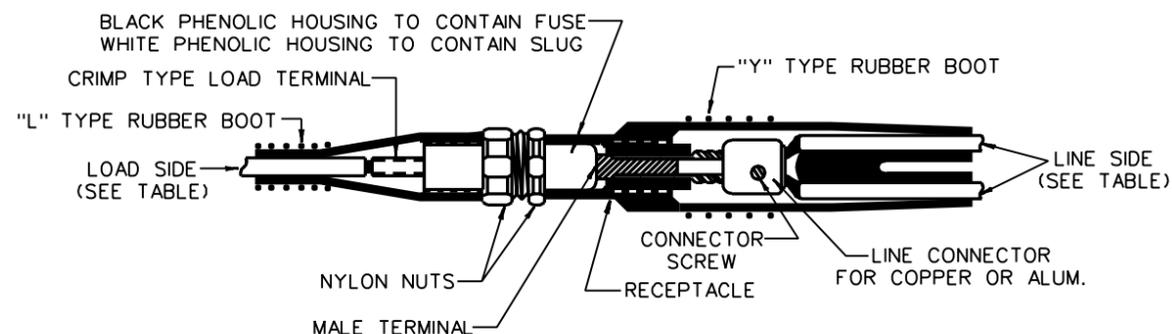
B	D	L	CABLE DIAMETER		AWG 600V CABLE	
			MIN.	MAX.		
76.2 AND 177.8	48.41 mm	103.19 mm	8.13mm	10.92mm	14.42mm ² AND 27.10mm ²	
	"	"	10.67mm	14.86mm	43.23mm ² AND 88.39mm ²	
	"	"	14.61mm	19.94mm	111.61mm ² - 167.74mm ² *	
	"	"	19.69mm	25.02mm	133.55mm ² - 268.38mm ²	
	"	106.36 mm	"	24.77mm	30.10mm	334.84mm ²
	"	109.54 mm	"	29.85mm	35.18mm	403.87mm ² - 504.52mm ²

*MAXIMUM "Y" CABLE SIZE. SEE CATALOGS OR DESIGN DRAWINGS FOR SPECIFIC KIT SYMBOLIZATION REQUIRED IN EACH APPLICATION.

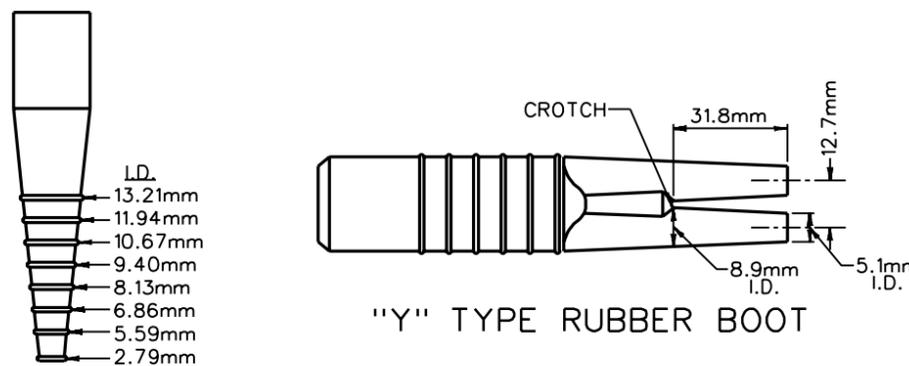
TYPE 8 & 9 CABLE CONNECTOR KITS



TYPE 8 "AL" - IN-LINE ALUMINUM
TYPE 8 "CU" - IN-LINE COPPER



TYPE 9 "AL" - T-TAP ALUMINUM
TYPE 9 "CU" - T-TAP COPPER



"L" TYPE
RUBBER BOOT

"Y" TYPE RUBBER BOOT

NOTES:

- STYLE "S" CONNECTORS SHALL BE THE SPLICING SLEEVE TYPE CONSISTING OF A CRIMPABLE PLATED COPPER SLEEVE WITH A THIN METAL WALL ("STOP") IN THE BARREL CENTERED BETWEEN EACH SLEEVE END IN SUCH A MANNER THAT THE SLEEVE SHALL ENCLOSE EQUAL LENGTHS OF THE TWO CONDUCTORS BEING SPLICED END TO END. THE BARREL OF THE SLEEVE WILL FIT SPECIFIC RANGES OF CONDUCTOR SIZES. THE MANUFACTURER'S INSTRUCTIONS RELATING THERETO SHALL BE STRICTLY FOLLOWED.
- STYLE "H" CONNECTORS SHALL BE THE PARALLEL GROOVE CONNECTOR CONSISTING OF A METAL BODY HAVING TWO FULLY-OPENED GROOVES OR SLOTS PARALLEL TO EACH OTHER, AND SEPARATED BY A PORTION OF THE CENTER SECTION OF THE BODY. THE TOTAL CIRCUMFERENCE OF EACH CONDUCTOR SHALL BE COMPLETELY SURROUNDED BY METAL WHEN THE CONNECTOR IS DEPRESSED.
- THE FUSEHOLDER SHALL BE CAPABLE OF RETAINING A 10.3mm DIAMETER BY 38.1mm LONG FUSE RATED AT 600 VOLT AND A MINIMUM OF 30 AMPERES.
- THE "Y" TYPE BOOT SHALL NOT BE CUT BEYOND THE CROTCH WHERE THE INSIDE DIAMETER OF EACH LEG IS 8.9mm. USE OF A CABLE OF 12.2mm O.D. IN THE "Y" TYPE BOOT MAY REQUIRE THE APPLICATION OF A LUBRICATING COMPOUND ON THE CABLE INSULATION FOR IT TO SLIDE INTO THE BOOT.
- IF THE CABLE HAS A NYLON JACKET, THE JACKET SHALL BE PEELED BACK TO A POINT WHERE NO PART OF THE JACKET IS ENCASED IN THE BOOT OF THE INSULATED CABLE.

- △ SIGNATURE BLOCK
- △ CHANGE NOTE 3 - AMPERAGE RATING
- △ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
ELECTRICAL CABLE
CONNECTOR KITS

PREPARED: 07/18/75

REVISIONS

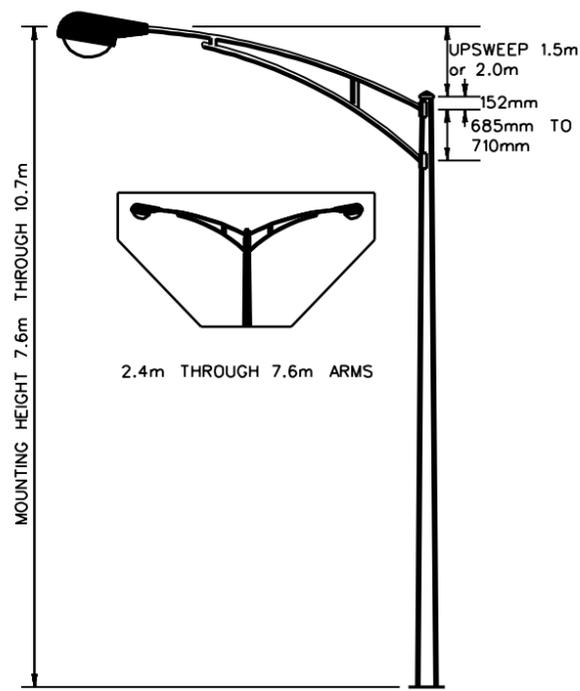
△ 12-10-76

△ 07-07-89

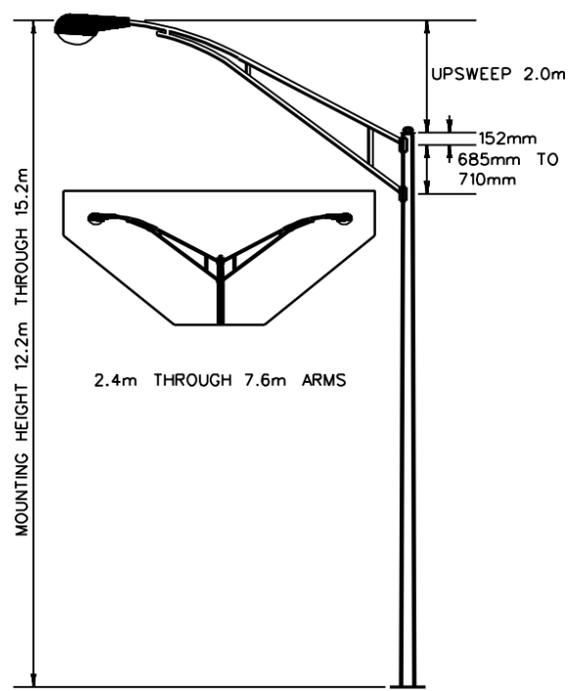
△ 04-28-94

STANDARD SHEET TEL-09B

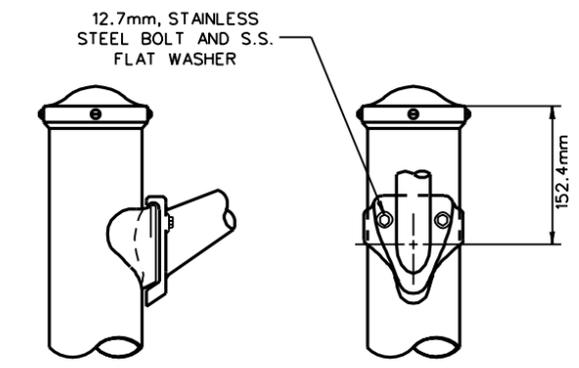
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WV							



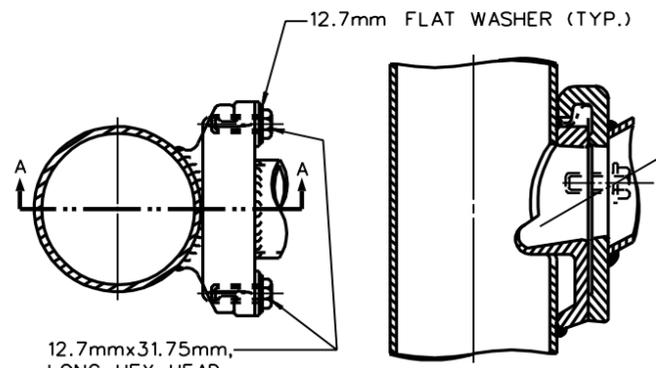
STYLE I



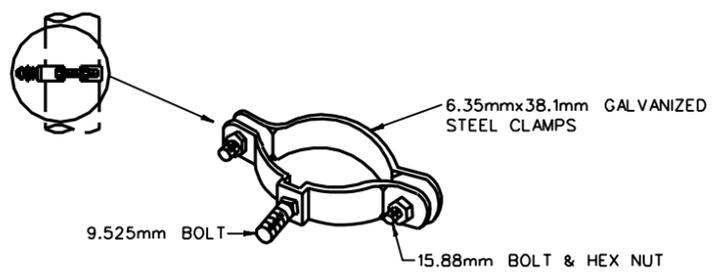
STYLE I (continued)



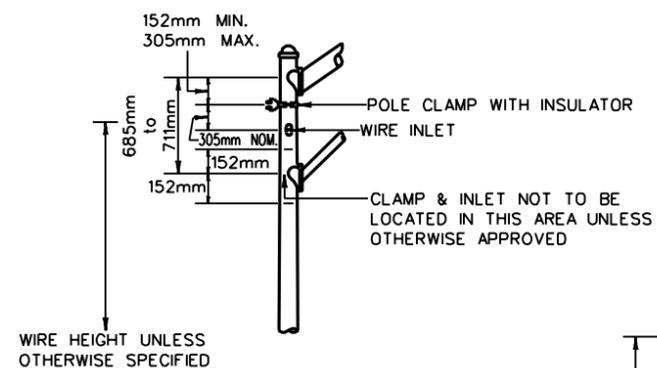
TWO BOLT ARM ATTACHMENT (OPTION NO. 1)



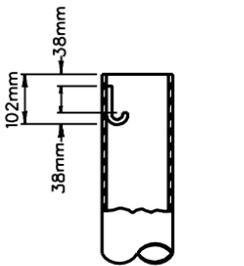
TWO BOLT ARM ATTACHMENT (OPTION NO. 2)



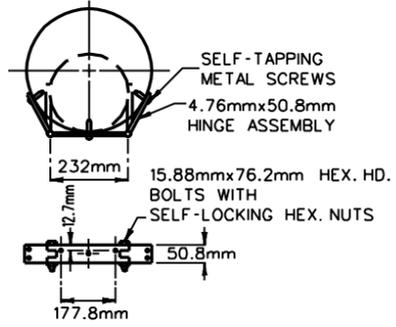
CLAMP



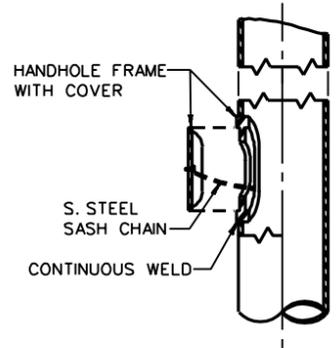
OVERHEAD WIRE ENTRANCE



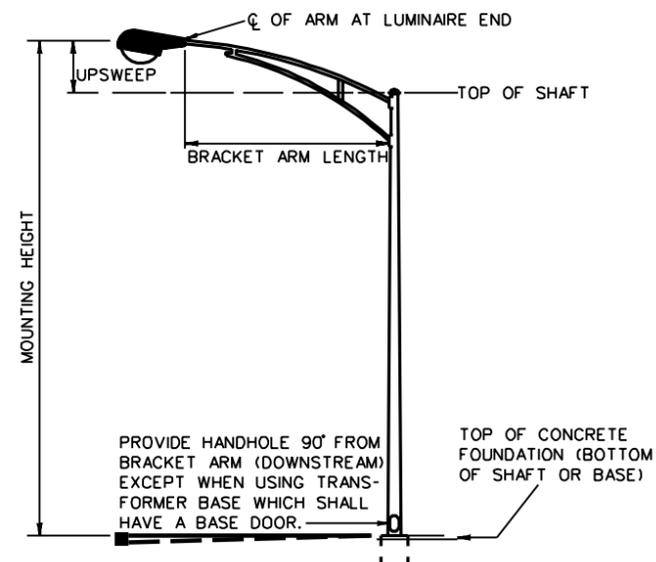
"J" HOOK DETAIL



CABINET MOUNTING BRACKET



HANDHOLE DETAIL



POLE COMPONENTS

- ▲ 6.5' UPSWEEP AND POLE COMPONENTS
- ▲ CHANGED ARMS AND RISES
- ▲ ADDED TEL-19 REFERENCE
- ▲ ADDED METRIC

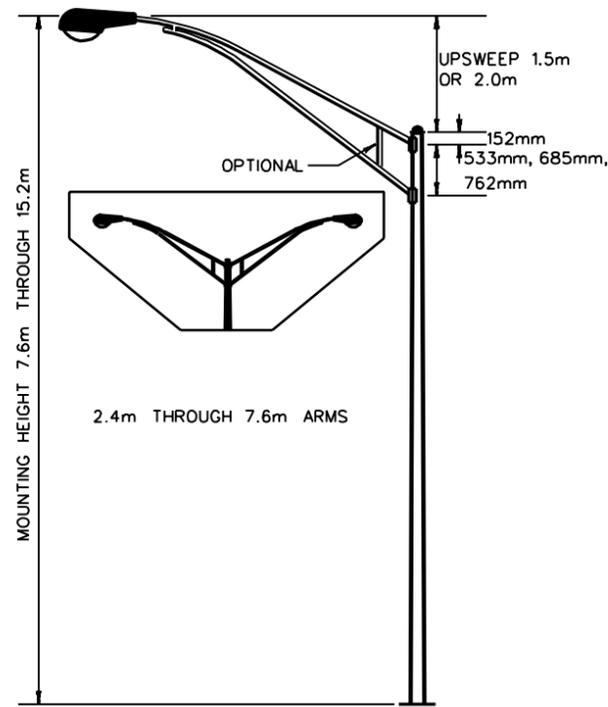
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
STEEL LIGHTING POLE DETAILS
TYPE I

PREPARED: 11/00/74

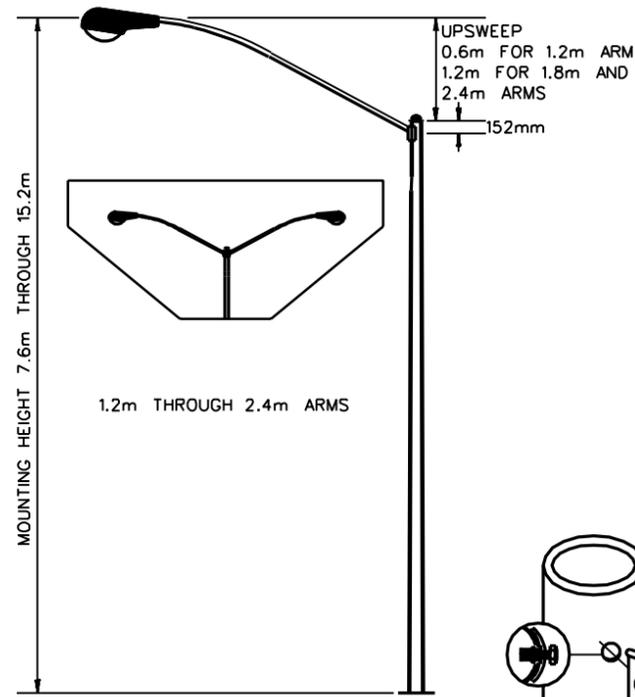
REVISIONS
▲ 03-03-77
▲ 05-23-80
▲ 09-14-93
▲ 04-28-94

STANDARD SHEET TEL-11

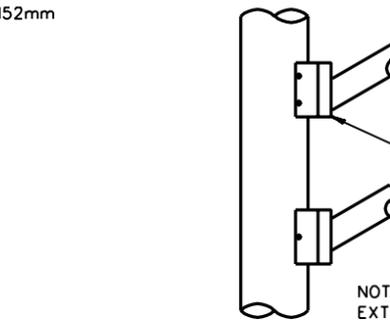
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



**TRUSS ARM
TYPE V**

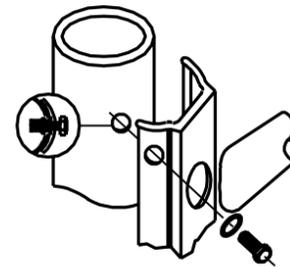


**SINGLE ARM
TYPE V**



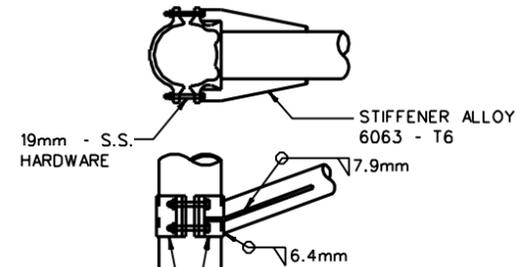
EXTRUDED ARM ATTACHMENTS - S.S. HARDWARE
(4) 12.7mm BOLTS, NUTS AND FLATWASHERS AND
25.4mm I.D. GROMMET AT TOP
(2) 12.7mm (OR 9.5mm) BOLTS, FLATWASHERS
AND RIVNUTS (IN POLE) AT BOTTOM

NOTE - FOR SINGLE ARM:
EXTRUDED ARM ATTACHMENTS - S.S. HARDWARE
(4) 9.525mm BOLTS, NUTS, AND FLATWASHERS AND 25.4mm
I.D. GROMMET OR 12.7mm ALUM. HARDWARE AS APPROVED
BY THE ENGINEER.



MAIN ARM AND UNDERBRACE (AS APPLICABLE) IS
WELDED TO AN EXTRUDED MOUNTING PLATE OF
ALLOY 6061 - T6. THE TRUSS ARM(S) IS ASSEMBLED
TO THE SHAFT BY MEANS OF FOUR, SIX OR EIGHT
RIVNUTS OR S.S. HEX. HEAD BOLTS, DEPENDING
ON LENGTH.

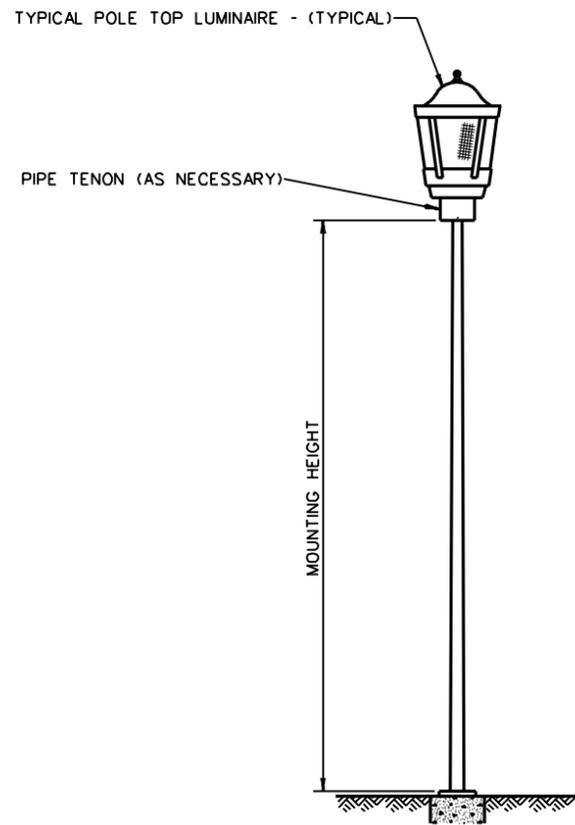
MOUNTING PLATE TYPE



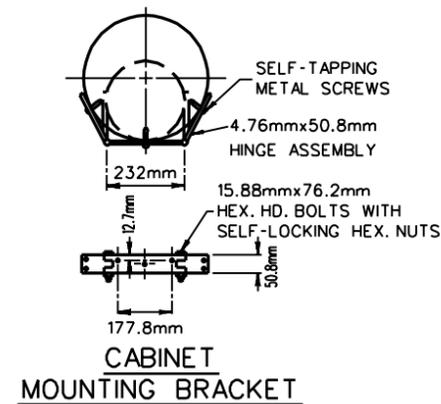
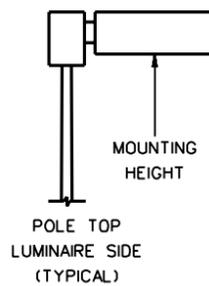
CAST ALUMINUM POLE BANDS
ALLOY 356 - T6 CLAMPED
NORMAL TO ROADWAY UNLESS
OTHERWISE NOTED ON PLANS.

BAND TYPE

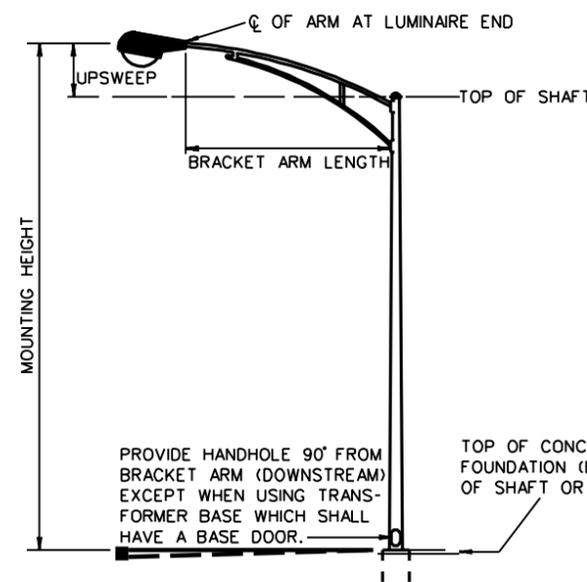
**ARM ATTACHMENT OPTIONS
TYPE V**



TYPE V



**CABINET
MOUNTING BRACKET**



**POLE COMPONENTS
TYPE V**

PROVIDE HANDHOLE 90° FROM
BRACKET ARM (DOWNSTREAM)
EXCEPT WHEN USING TRANS-
FORMER BASE WHICH SHALL
HAVE A BASE DOOR.

TOP OF CONCRETE
FOUNDATION (BOTTOM
OF SHAFT OR BASE)

GENERAL NOTES

- POLE:
 - EACH POLE SHALL BE COMPLETE WITH A POLE CAP, J-HOOK, AND A HAND HOLE.
 - SEE TEL-15B FOR FOUNDATION DETAILS.
 - FOR BASES, SEE CONTRACT PLANS AND/OR TEL-18.
- CONDUIT : (FOR CABINET MOUNTING AND/OR POSSIBLE POWER SERVICE)
 - CONDUIT SHALL BE FASTENED TO THE POLE WITH CONDUIT CLAMPS 1.2m C.C.
 - CONDUIT CLAMPS SHALL BE FASTENED TO THE POLE WITH SELF-TAPPING SCREWS.
- CABINET MOUNTING BRACKET:
 - WHEN CABINET OR CABINETS ARE TO BE MOUNTED ON A POLE, THE POLE SHALL BE COMPLETE WITH TWO BRACKETS PER CABINET.
 - THE HEIGHT OF THE CABINET IS SPECIFIED ON THE CONTRACT PLANS.
 - CONTRACTOR SHALL FIELD DRILL THE HOLES FOR THE SELF-TAPPING SCREWS AFTER THE FINAL POSITION HAS BEEN DETERMINED.
- HAND HOLES:
 - THE HAND HOLE IN THE BASE SHALL BE A MINIMUM SIZE OF 100mmx155mm. FOR TYPE V POLES; FOR TYPE VII POLES - SEE CONTRACT PLANS.
 - THE HAND HOLE FOR TYPE V POLES SHALL BE LOCATED 90° FROM BRACKET ARM (DOWNSTREAM).
- BRACKET ARM:
 - THE ARM FOR TYPE V POLES SHALL BE ATTACHED TO THE POLE SO THAT IT CAN TRANSFER THE FULL STRENGTH OF THE ARM TO THE POLE SHAFT.
 - BRACKET ARM SHALL BE EQUIPPED WITH A 50.8mm SLIP FIT TYPE CONNECTION FOR THE LUMINAIRE.
- WELDING:
 - CONNECTIONS SHALL BE DESIGNED FOR THE LOAD ON THE MEMBERS.

- △ CHANGED ARMS AND RISES
- △ REVISED UPSWEEPS, DELETED SOCKET ARM, ADDED EXTRUDED ARM ATTACHMENTS
- △ ADDED METRIC

**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
ALUMINUM LIGHTING POLE DETAILS
TYPES V AND VII**

PREPARED: 11/03/76

REVISIONS
10-24-77
△ 05-23-80
△ 01-21-93
△ 04-27-94

STANDARD SHEET TEL-15A

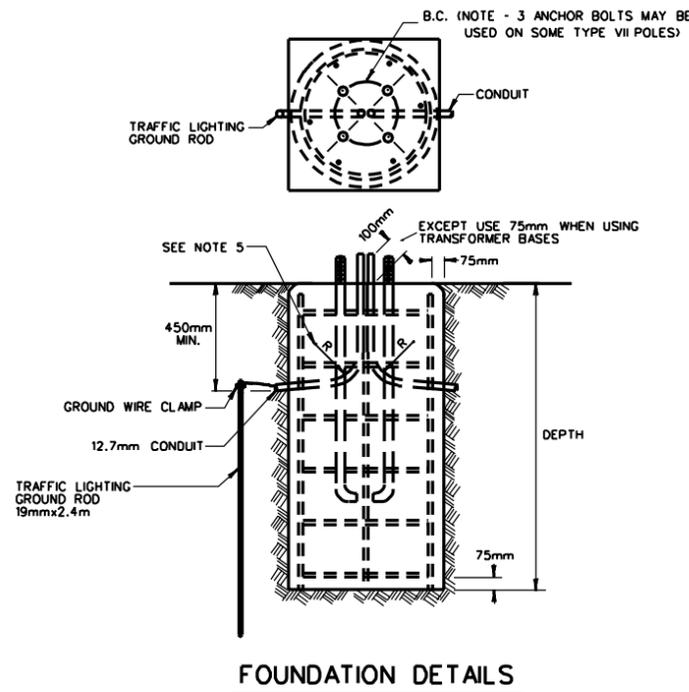
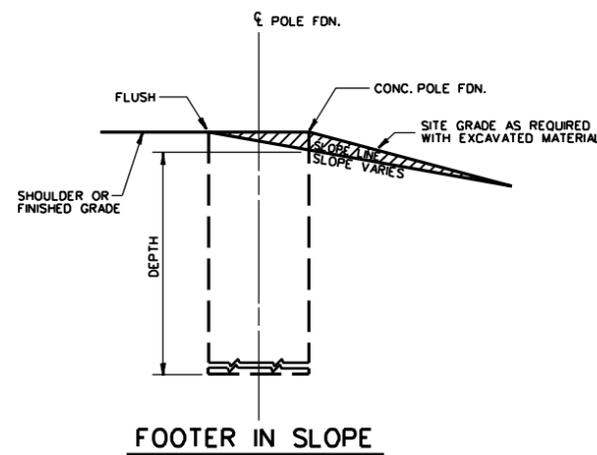
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

POLE SIZE BASE O.D. (mm)							FOUNDATION			ANCHORAGE		REINFORCING STEEL	
3.18mm	3.43mm	3.96mm	4.78mm	5.56mm	6.35mm	6.86mm	DIA. METER OR SIDE (METER)	DEPTH (METER)	VOLUME (m ³)	B.C. x x	A.B. x	NO BARS	SIZE
101.6mm							0.5	1.3	0.26	177.8	19.05	—	—
127.0mm							0.5	1.3	0.26	203.2	19.05	—	—
		152.4mm					0.6	1.3	0.37	254.0	25.4	4	#13
		177.8mm	177.8mm				0.6	1.3	0.37	279.4	25.4	4	#13
	203.2mm & 228.6mm	203.2mm	203.2mm & 228.6mm	203.2mm			0.6	1.3	0.37	304.8	25.4	4	#13
				228.6mm			0.6	1.4	0.40	304.8	25.4	6	#16
			254.0mm				0.6	1.3	0.37	381.0	25.4	4	#13
				254.0mm	254.0mm		0.6	1.4	0.40	381.0	25.4	6	#16
				279.4mm			0.75	1.4	0.62	381.0	25.4	6	#16
	292.1mm						0.75	1.4	0.62	381.0	31.75	4	#13
	304.8mm						0.75	1.4	0.62	406.4	31.75	6	#16
				304.8mm			0.75	1.6	0.71	419.1	25.4	6	#16
	330.2mm & 342.9mm						0.75	1.6	0.71	406.4	31.75	6	#16
					228.6mm		0.6	1.6	0.45	304.8	31.75	6	#16

x MINIMUM SIZES
 19.05mmx660mmx102mm
 25.4mmx915mmx102mm
 31.75mmx1065mmx152mm
 x x WHEN USING TRANSFORMER BASE(S), SEE TEL-18
 FOR ANCHOR BOLT-BOLT CIRCLE IN FOUNDATION.

FOUNDATION NOTE:

- CONCRETE:
 - ALL EXPOSED CONCRETE SHALL HAVE A NORMAL FINISH.
 - ALL OUTSIDE CONCRETE CORNERS AND EDGES SHALL HAVE A 19mm CHAMFER.
 - CONCRETE TO BE RODDED OR VIBRATED WHILE POURING.
 - ALL CONCRETE SHALL BE CLASS "B".
- STEEL:
 - REINFORCING STEEL SHALL NOT BE CLOSER THAN 75mm TO THE OUTSIDE SURFACE OF THE FOOTING AND SHALL BE TIED OR WELDED.
 - VERTICAL BARS SHALL BE TIED WITH #13 HOOP BARS AT 300mm ON CENTER. THE #13 HOOP BARS SHALL HAVE A 300mm MINIMUM LAP.
- FOOTINGS:
 - ALL FOOTING IN SIDEWALKS SHALL BE FINISHED FLUSH WITH THE EXISTING SIDEWALKS, UNLESS OTHERWISE SPECIFIED BY THE PROJECT ENGINEER.
 - FOOTINGS MAY BE EITHER CIRCULAR OR SQUARE IN CROSS-SECTION. CIRCULAR FOOTINGS SHALL BE SQUARE FOR THE TOP 300mm.
 - WITH PERMISSION OF THE PROJECT ENGINEER, THE DEPTH OF THE FOOTING MAY BE REDUCED 0.3m WHEN THE FOOTING IS PLACED IN A CONCRETE OR ASPHALTIC CONCRETE SIDEWALK OR PAVED SURFACE. THE FOOTINGS MAY BE REDUCED BY 0.3m WHEN THE FOOTING IS IN ROCK.
- FORMS:
 - NO FORMS MAY EXTEND TO A DEPTH GREATER THAN 12" UNLESS APPROVAL IS GRANTED BY THE PROJECT ENGINEER.
- CONDUIT:
 - THE RADIUS (R) OF THE CURVE OF THE INNER EDGE OF ANY BEND SHALL NOT BE LESS THAN THE SIZE SPECIFIED IN THE N.E.C.



- △ DELETED ALLOY
- △ CHANGED GROUND ROD
- △ ADDED METRIC

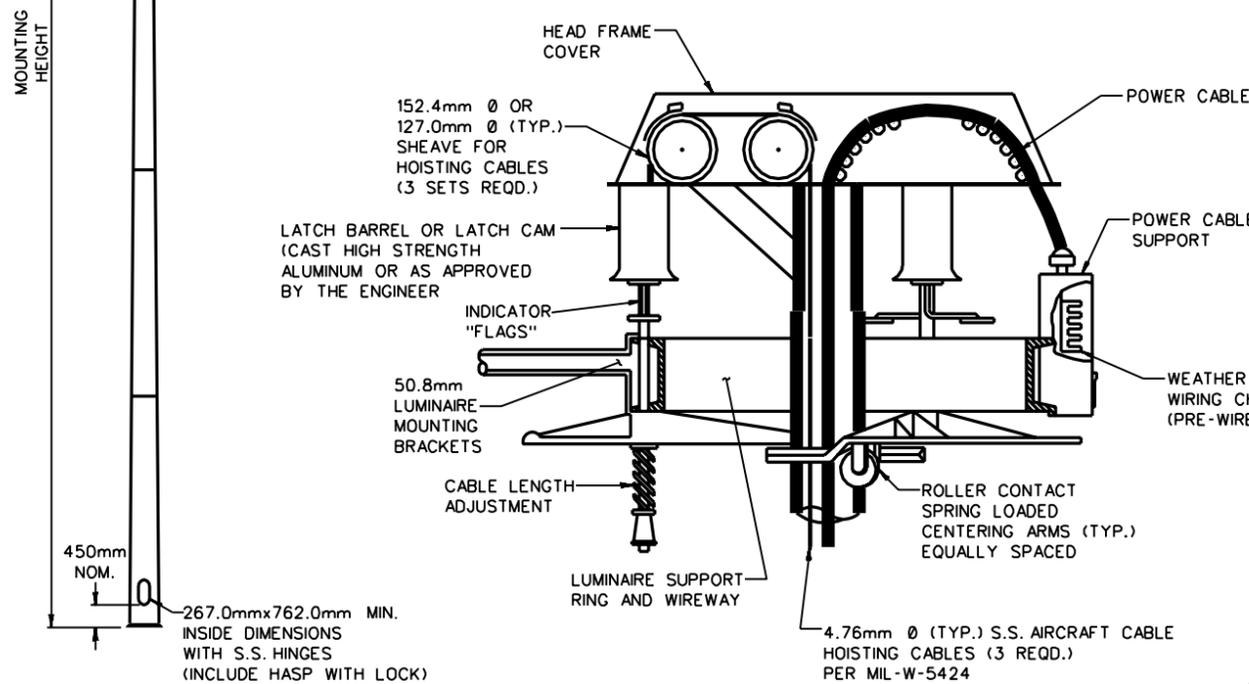
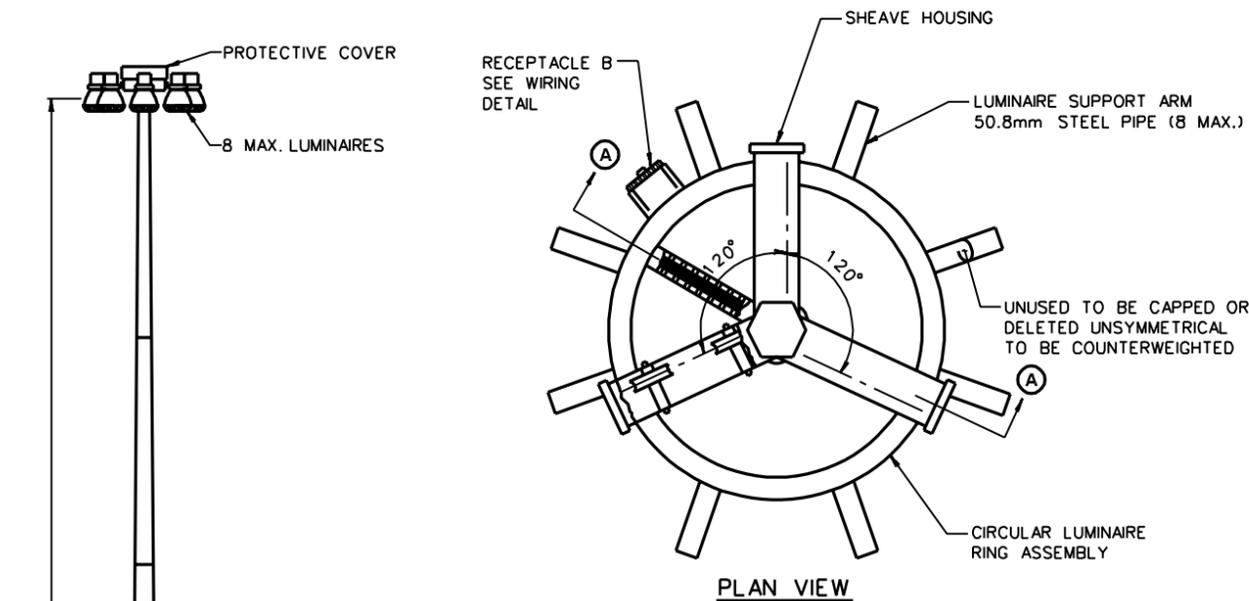
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
ALUMINUM POLE FOUNDATIONS

PREPARED: 05/01/77

REVISIONS
10-24-77
△ 05-23-80
△ 09-15-84
△ 04-27-94

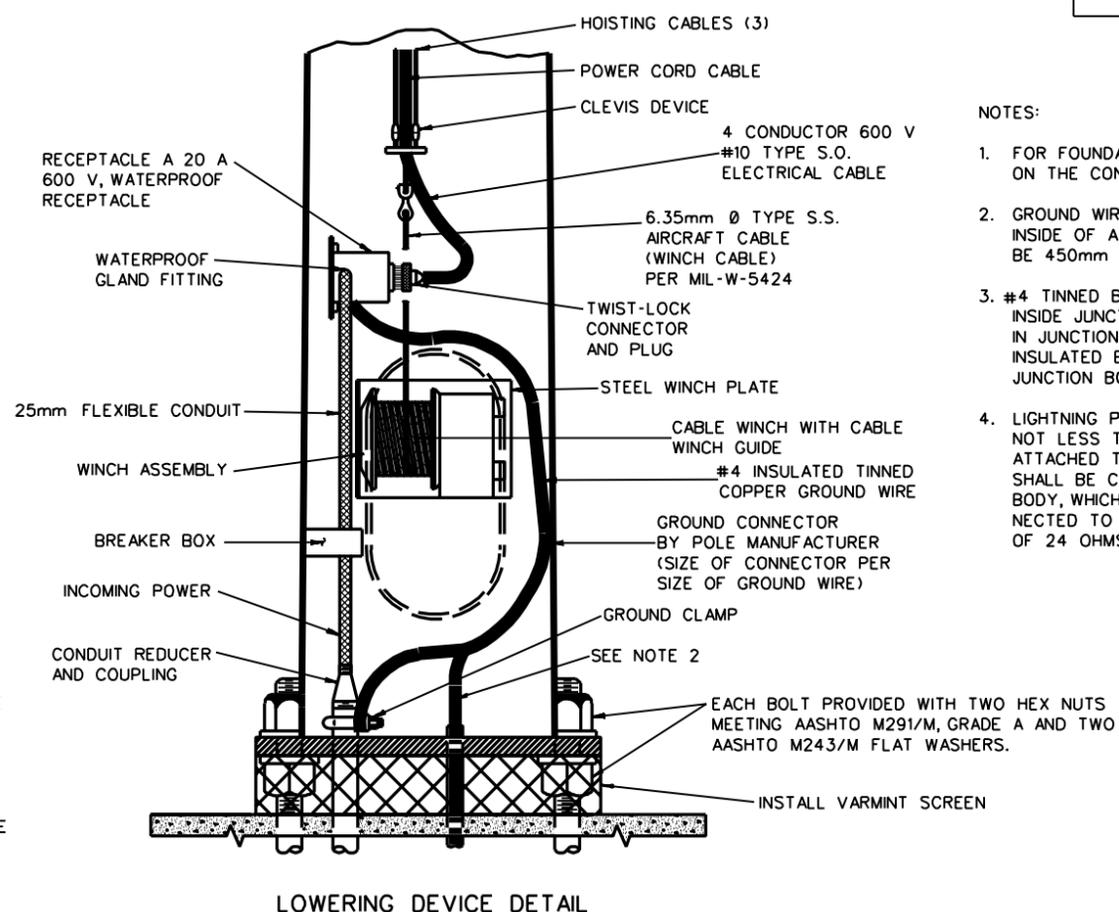
STANDARD SHEET TEL-15B

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



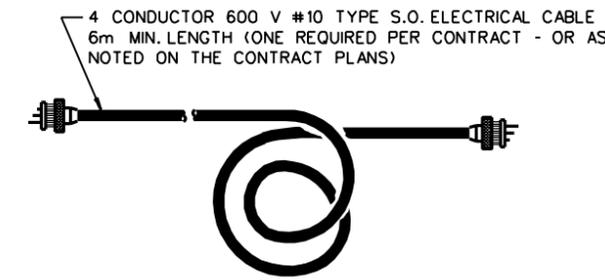
ELEVATION

SECTION A-A LOWERING DEVICE

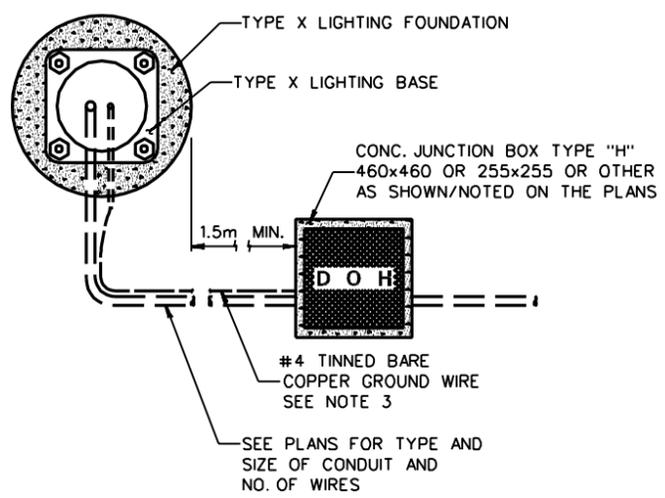


LOWERNG DEVICE DETAIL

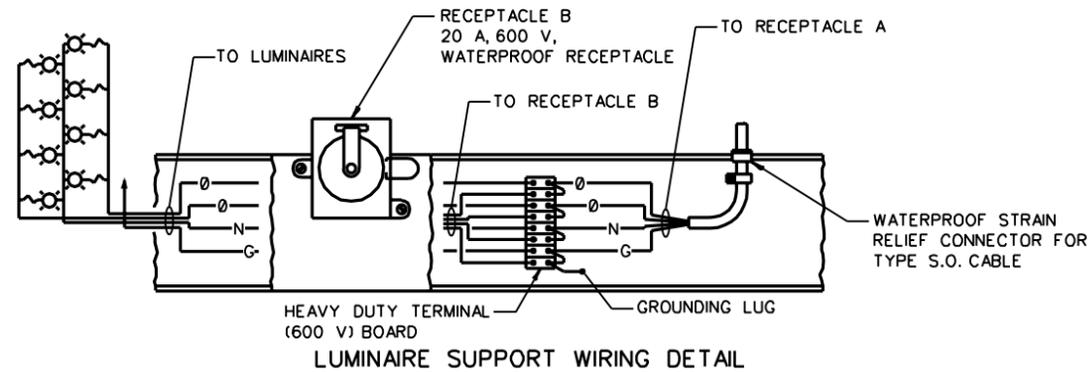
- NOTES:
- FOR FOUNDATIONS SEE SPECIAL DESIGNS AS SHOWN ON THE CONTRACT PLANS OR CONTACT ENGINEER.
 - GROUND WIRE TO BE BROUGHT THROUGH FOUNDATION INSIDE OF A 19.05mm METAL CONDUIT. CONDUIT SHALL BE 450mm BELOW GRADE AND SHALL BE BUSHED.
 - #4 TINNED BARE COPPER GROUND WIRE WITH 0.6m SLACK INSIDE JUNCTION BOX. THERMO WELD TO GROUND ROD IN JUNCTION BOX AND CONNECT TO GROUND TYPE INSULATED BUSHINGS ON ALL METAL CONDUITS IN JUNCTION BOX.
 - LIGHTNING PROTECTION - A STAINLESS STEEL SPIKE NOT LESS THAN 150mm IN LENGTH SHALL BE ATTACHED TO THE TOP OF THE POLE. THIS SPIKE SHALL BE CONNECTED ELECTRICALLY TO THE POLE BODY, WHICH IN TURN SHALL BE ELECTRICALLY CONNECTED TO A POSITIVE GROUND, MAXIMUM RESISTANCE OF 24 OHMS PER GROUND ROD TO GROUND.



SERVICE CORD DETAIL



TYPICAL CONDUIT DETAIL



LUMINAIRE SUPPORT WIRING DETAIL

- △ COMPLETE REVISION HEAD FRAME AND LOWERING DEVICE, DELETED HOLD DOWN CABLE, DELETED STOP RING
- △ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
STEEL LIGHTING POLE DETAILS
TYPE X

PREPARED: 06/00/76
REVISIONS
06-22-76
01-22-93
04-27-94

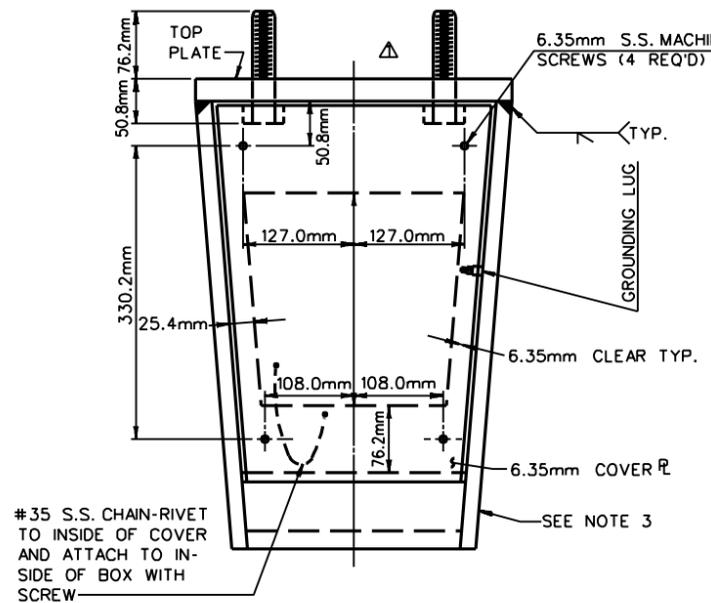
STANDARD SHEET TEL-16A

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

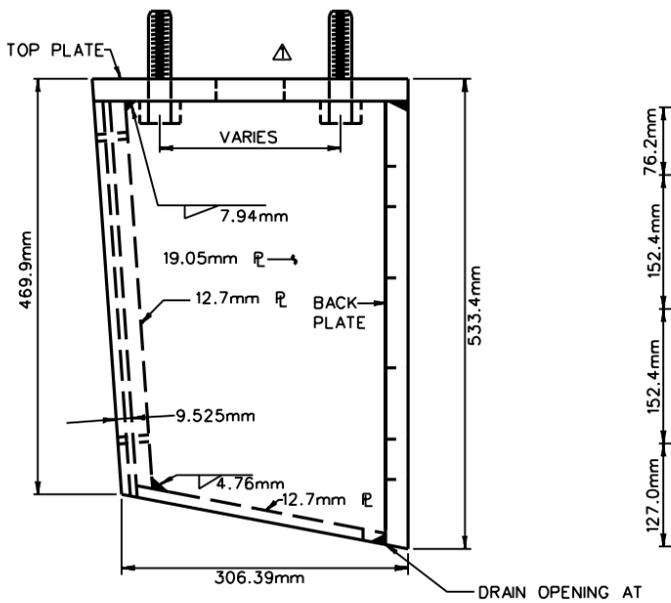
NOTES

- ALL TYPE D BOXES ARE TO BE FABRICATED FROM STEEL CONFORMING TO AASHTO M183/M AND HOT DIPPED GALVANIZED AFTER ASSEMBLY.
- FOR ADDITIONAL STEEL REINFORCING BARS NEEDED TO SUPPORT LIGHTING POLES, SEE INDIVIDUAL BRIDGE DESIGN DRAWING.
- STEEL SPACERS MAY BE WELDED TO BASE PRIOR TO GALVANIZING.
- EACH LIGHTING POLE TO BE SUPPLIED WITH A MINIMUM OF FOUR 1.6m THICK STANDARD GALVANIZED STEEL SHIMS.
- ANCHOR BOLTS AND NUTS FOR LIGHTING POLE CONNECTION TO LIGHTING POLE SUPPORT BASE SHALL MEET THE REQUIREMENTS OF SECTION 709.24.

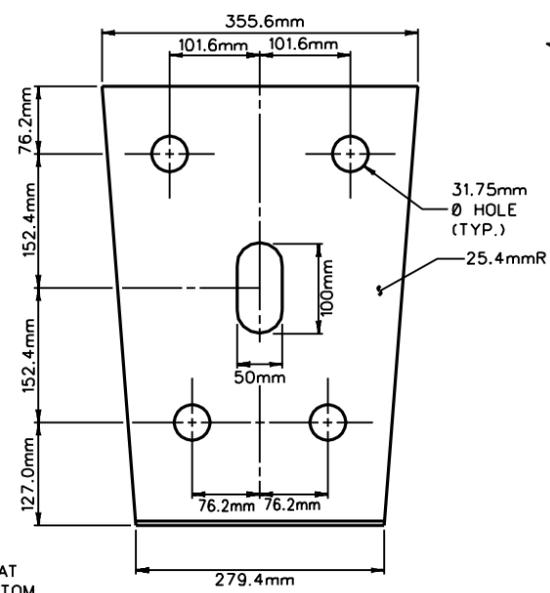
TIGHTEN ALL HIGH STRENGTH BOLTS BY TURN OF NUT METHOD IN ACCORDANCE WITH SECTION 615 OF THE SPECIFICATIONS.
- ANCHOR BOLTS FOR LIGHTING POLE SUPPORT BASE CONNECTION TO PARAPET WALL SHALL BE FABRICATED FROM HIGH STRENGTH STEEL MEETING AASHTO M 314 GRADE 370. THE PHYSICAL, CHEMICAL AND DIMENSIONAL CHARACTERISTICS OF THE NUTS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A-307. WASHERS SHALL MEET ASTM F844.



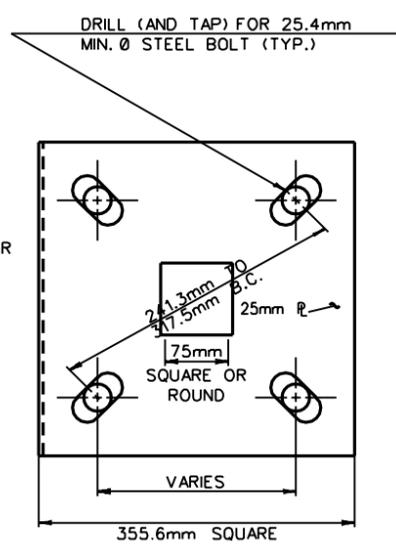
TYPE D - FRONT VIEW



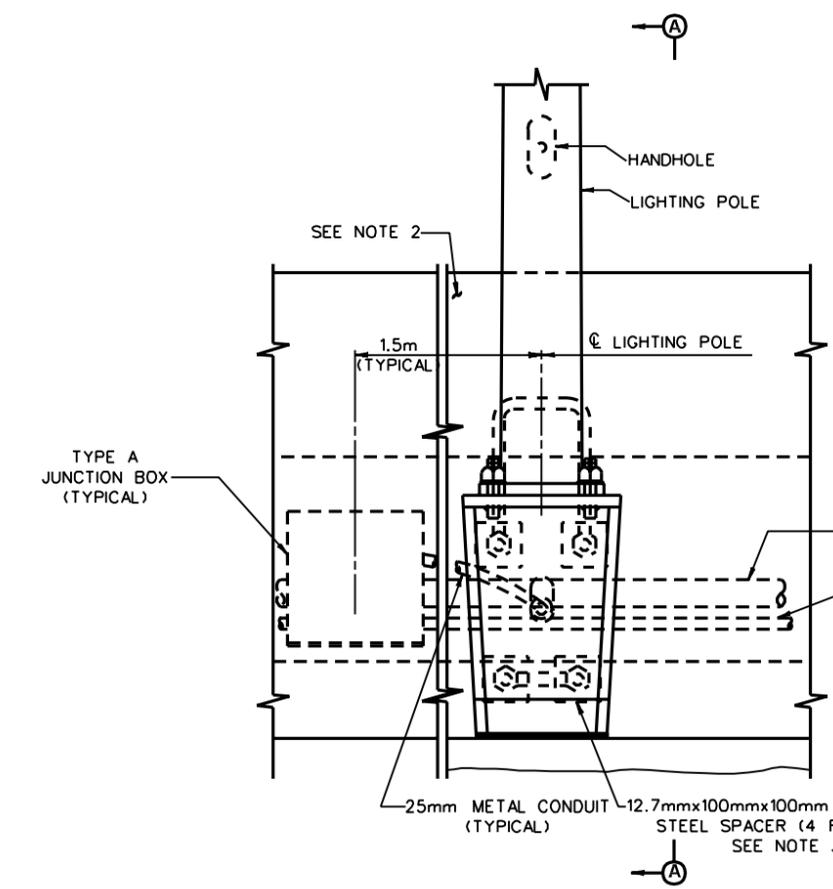
TYPE D - SIDE VIEW



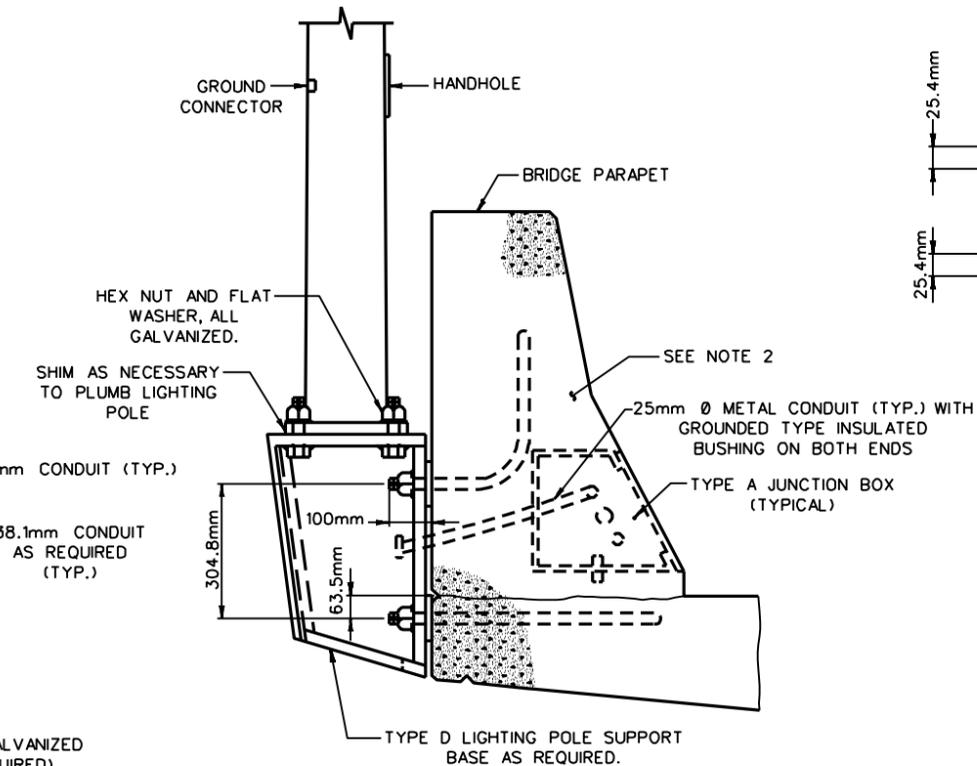
TYPE D - BACK PLATE



TYPE D - TOP PLATE

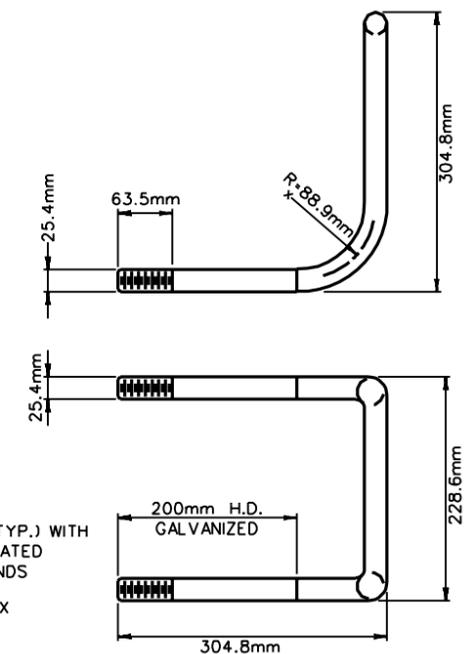


ELEVATION



SECTION A-A

TYPE D - INSTALLATION DETAILS



ANCHOR BOLTS FOR LIGHTING POLE SUPPORT BASE - TYPE D

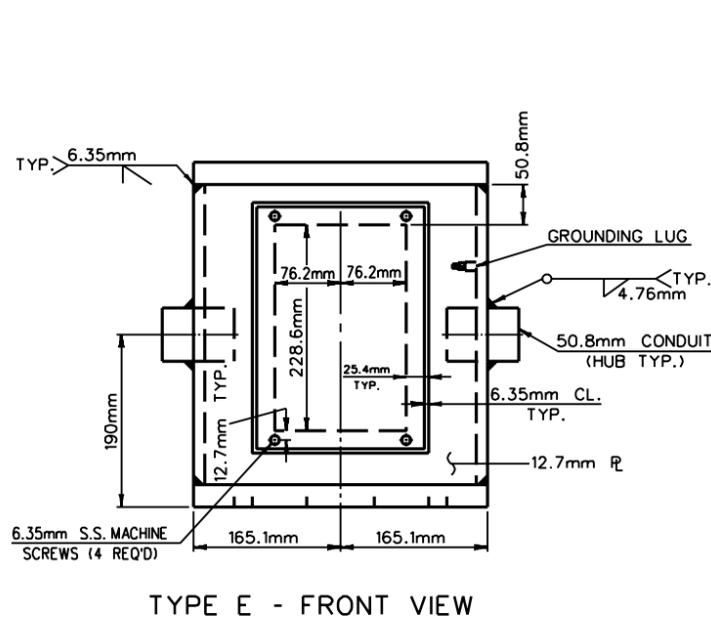
- △ DELETED WELDS
- △ REVISED H.S. BOLT NOTE AND A.B. WASHER SPEC AND CHANGED U-ANCHOR BOLT NOTE
- △ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
LIGHTING POLE
SUPPORT BASE - TYPE D

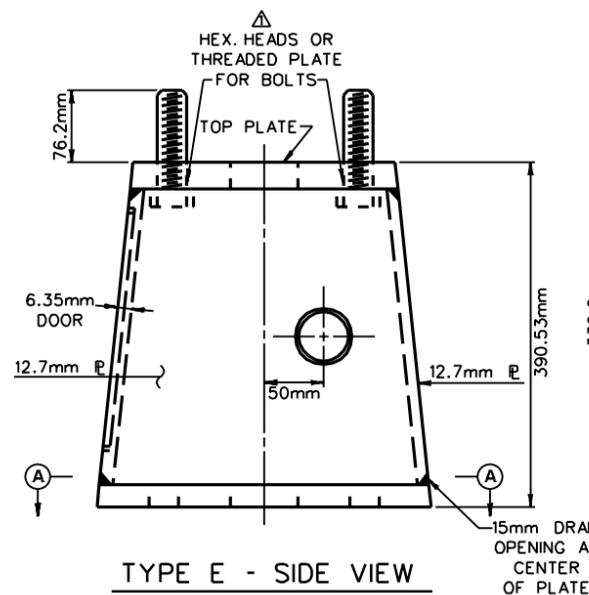
PREPARED: 07/18/75

REVISIONS
△ 07-22-76
△ 09-14-93
△ 04-25-94

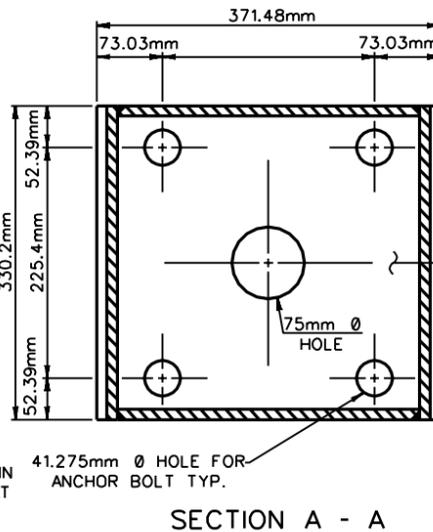
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



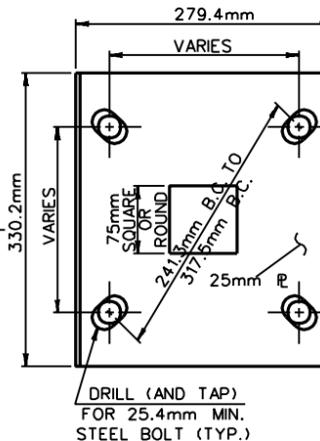
TYPE E - FRONT VIEW



TYPE E - SIDE VIEW



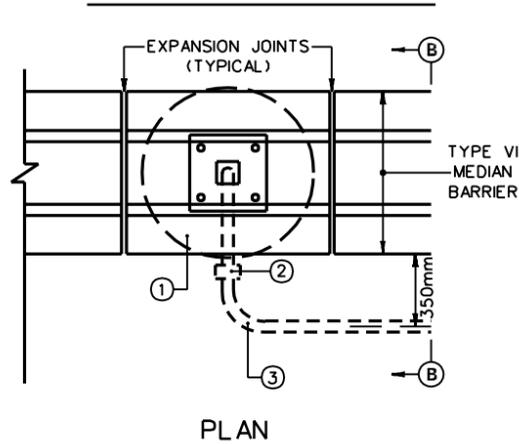
SECTION A - A



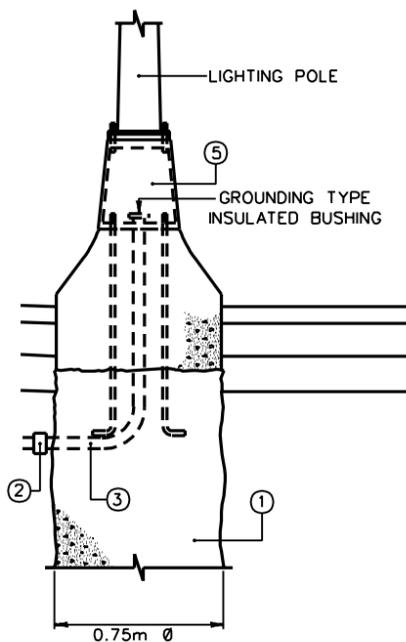
TYPE E - TOP PLATE

NOTES:

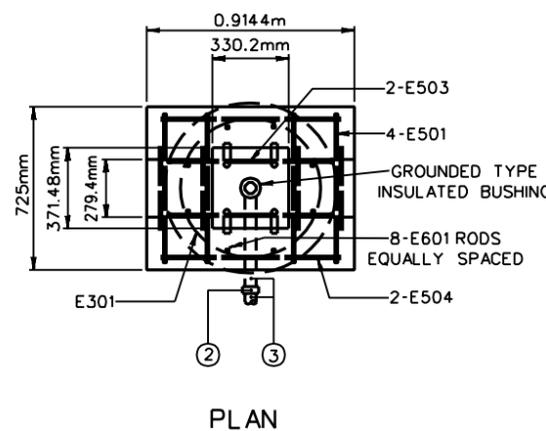
- ALL TYPE E BOXES AND PLATES ARE TO BE FABRICATED FROM STEEL CONFORMING TO AASHTO M183/M AND HOT DIPPED GALVANIZED AFTER ASSEMBLY.
- FOR ADDITIONAL STEEL REINFORCING BARS NEEDED TO SUPPORT LIGHTING POLES, SEE INDIVIDUAL BRIDGE DESIGN DRAWINGS.
- EACH LIGHTING POLE TO BE SUPPLIED WITH A MINIMUM OF FOUR 1.6mm STANDARD GALVANIZED STEEL SHIMS.
- ANCHOR BOLTS AND NUTS FOR LIGHTING POLE CONNECTION TO LIGHTING POLE SUPPORT BASE SHALL MEET THE REQUIREMENTS OF SECTION 709.24.
TIGHTEN ALL HIGH STRENGTH BOLTS BY TURN OF NUT METHOD IN ACCORDANCE WITH SECTION 615 OF THE SPECIFICATIONS.
- ANCHOR BOLTS FOR LIGHTING POLE SUPPORT BASE CONNECTION TO FOUNDATION ON BRIDGE MEDIAN SHALL BE FABRICATED FROM HIGH STRENGTH STEEL MEETING AASHTO M 314 GRADE 370. THE PHYSICAL, CHEMICAL, AND DIMENSIONAL CHARACTERISTICS OF ASTM A-307. WASHERS SHALL MEET ASTM F844.
- CONDUIT NOT USED TO BE FIELD CAPPED.
- CONTRACTOR MAY USE #13 HOOPS SPACED 300mm ON CENTER IN LIEU OF BARS AS SHOWN. HOOPS SHALL HAVE A MINIMUM OF 300mm OVERLAP.



PLAN

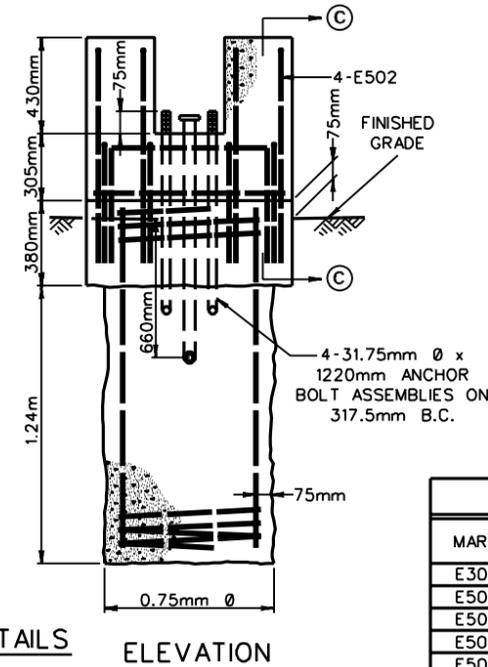


SECTION B - B

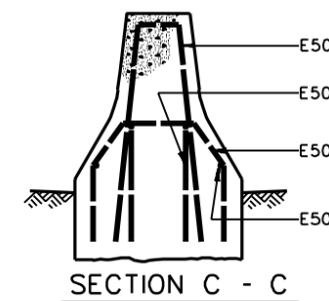


PLAN

TYPE E - INSTALLATION DETAILS FOR MEDIAN BARRIER



ELEVATION

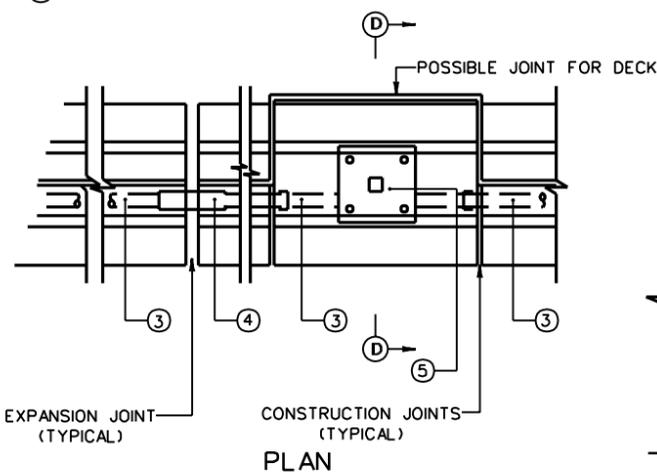


SECTION C - C

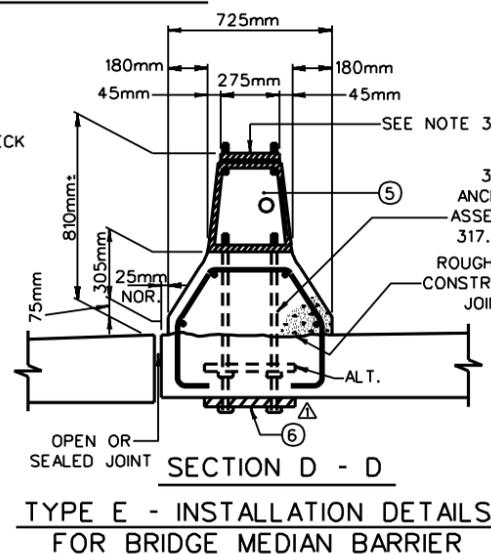
LEGEND:

- TYPE E LIGHTING SUPPORT BASE FOUNDATION FOR MEDIAN BARRIER.
- CONDUIT COUPLING.
- 50.8mm METAL CONDUIT UNLESS OTHERWISE INDICATED ON PLANS.
- CONDUIT EXPANSION AND DEFLECTION JOINT FITTING.
- TYPE E LIGHTING POLE SUPPORT BASE.
- ANCHOR PLATE (25mm), AASHTO M183/M, GALVANIZED)

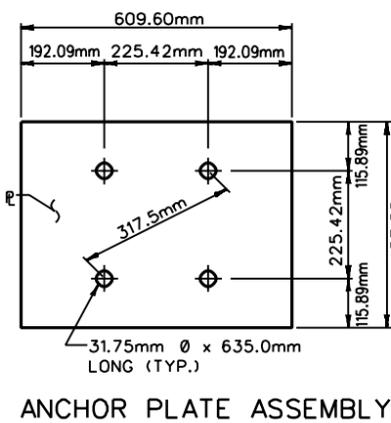
REINFORCING BAR SCHEDULE								
MARK	SIZE	NO. REQ'D.	LENGTH	TYPE	A	B	C	D
E301	#10	1	62m	3	600mm	50mm	975mm*	
E501	#16	4	1549mm	4	305mm	267mm	355mm	153mm
E502	#16	4	2108mm	5	178mm	965mm	102mm	
E503	#16	2	1825mm	6	725mm	550mm		
E504	#16	2	800mm	STR.				
E601	#19	8	1550mm	STR.				



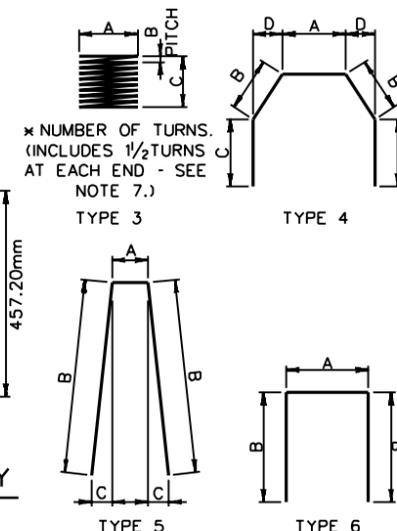
PLAN



TYPE E - INSTALLATION DETAILS FOR BRIDGE MEDIAN BARRIER



ANCHOR PLATE ASSEMBLY



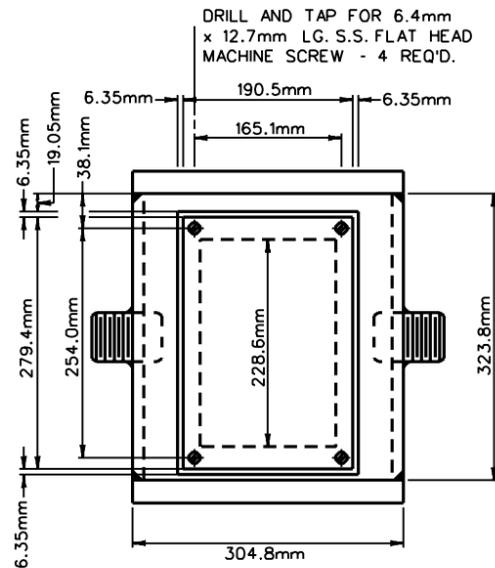
- DELETED WELDS AND ADDED HEX HEADS FOR ANCHOR PLATE
- REVISED H.S. BOLT NOTE AND A.B. WASHER SPEC.
- ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
LIGHTING POLE
SUPPORT BASE - TYPE E

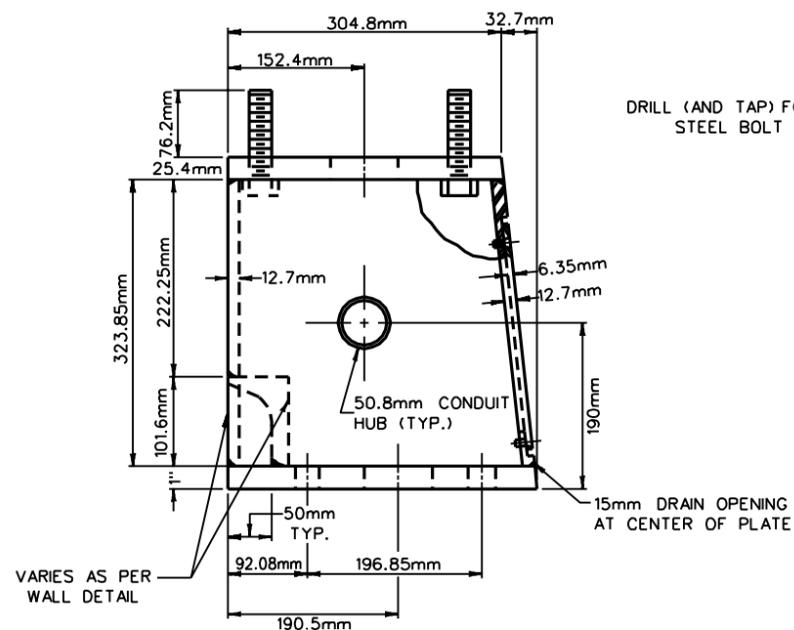
PREPARED:	REVISIONS
07/18/75	
07-22-76	
09-14-93	
04-22-94	

STANDARD SHEET TEL-17B

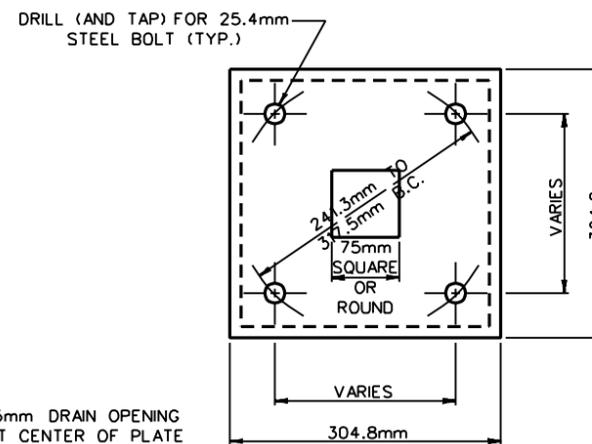
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



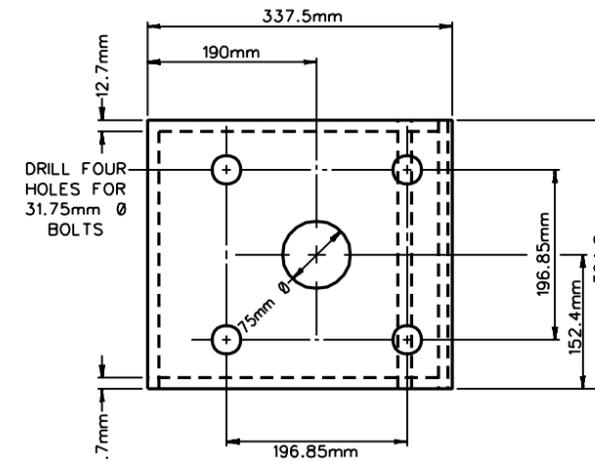
TYPE "F" FRONT VIEW



TYPE "F" SIDE VIEW



TYPE "F" TOP VIEW



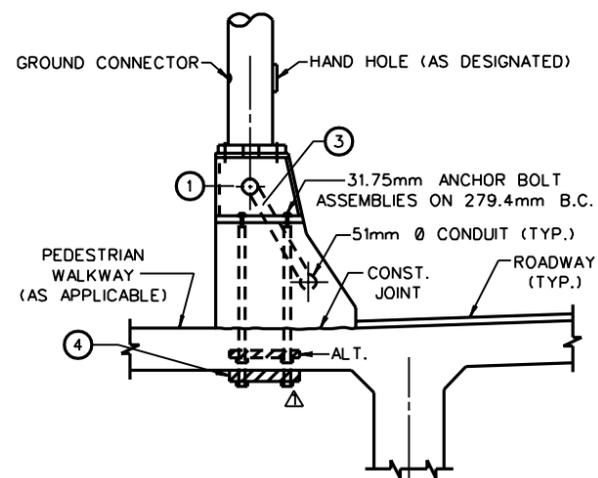
TYPE "F" BOTTOM VIEW

NOTES:

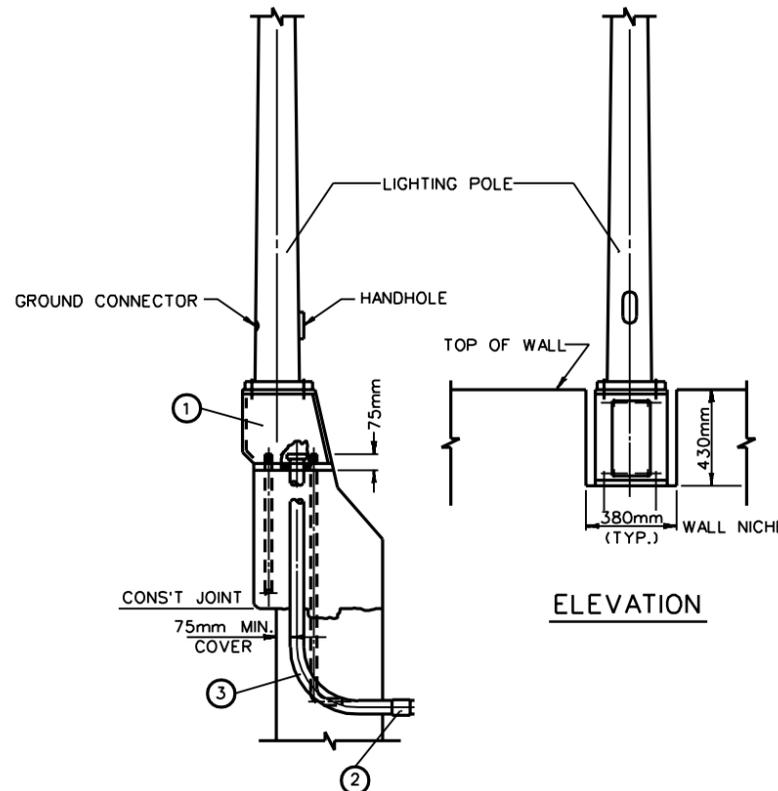
- ALL TYPE "F" BOXES AND PLATES ARE TO BE FABRICATED FROM STEEL CONFORMING TO AASHTO M183/M AND HOT DIPPED GALVANIZED, AFTER ASSEMBLY.
- FOR ADDITIONAL STEEL REINFORCING BARS NEEDED TO SUPPORT LIGHTING POLES, SEE INDIVIDUAL BRIDGE DESIGN OR WALL DESIGN DRAWINGS.
- EACH LIGHTING POLE TO BE SUPPLIED WITH A MINIMUM OF FOUR 1.6mm THICK STANDARD GALVANIZED STEEL SHIMS.
- ANCHOR BOLTS AND NUTS FOR LIGHTING POLE CONNECTION TO LIGHTING POLE SUPPORT BASE SHALL MEET THE REQUIREMENTS OF SECTION 709.24.

TIGHTEN ALL HIGH STRENGTH BOLTS BY TURN OF NUT METHOD IN ACCORDANCE WITH SECTION 615 OF THE SPECIFICATIONS.

- ANCHOR BOLTS FOR LIGHTING POLE SUPPORT BASE CONNECTION TO BRIDGE OR WALL SHALL BE FABRICATED FROM HIGH STRENGTH STEEL MEETING AASHTO M 314, GRADE 370. THE PHYSICAL, CHEMICAL, AND DIMENSIONAL CHARACTERISTICS OF THE NUTS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A-307. WASHERS SHALL MEET ASTM F844.

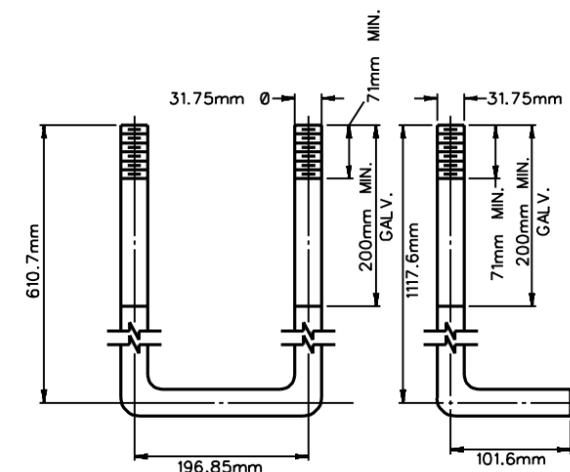


TYPE "F" INSTALLATION DETAILS ON PARAPET



ELEVATION

TYPE "F" INSTALLATION DETAILS ON WALL



ANCHOR BOLTS FOR WALL MOUNTING

- △ DELETED WELDS AND ADDED HEX. HEADS FOR ANCHOR PLATE
- △ CHANGED ALL DIMENSIONS
- △ REVISED H.S. BOLT NOTE AND A.B. WASHER SPEC.
- △ ADDED METRIC

LEGEND:

- TYPE "F" LIGHTING POLE SUPPORT BASE
- CONDUIT COUPLING (AS REQUIRED)
- 25mm METAL CONDUIT (TYP.)
- ANCHOR PLATE (25mm) ASTM AASHTO M183M GALVANIZED)

PREPARED: 07/18/75

REVISIONS

△	07-22-76
△	08-11-77
△	09-14-93
△	04-22-94

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
LIGHTING POLE
SUPPORT BASE - TYPE F

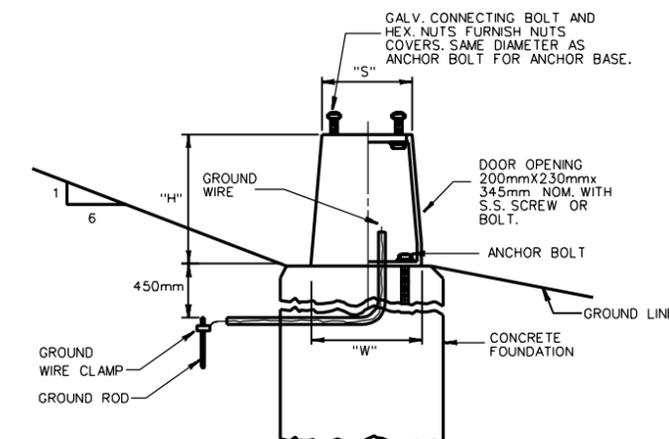
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

DESIGNATOR	MATERIAL	HGT. (H)	TOP B.C.	TOP DIMENSION (S)	BOTTOM B.C.	BOTTOM DIMENSION (N)	CONNECTING BOLTS	* ANCHOR BOLTS	SPECIAL DETAILS	MAX. LIMITATION (TO TYPE 1, 2, AND 5, FOR TYPE 3 SEE CONTRACT PLANS)	
										WEIGHT (WITH LUMINAIRE)	WALL THICK & O.D. VS. T-BASE MAX.
AT-UA1 **	356-T6 MEETING ASTM B-108	508.0 mm	279.4mm TO 317.5mm SLOTTED	320.675mm SQ.	381.0mm TO 393.7mm SLOTTED (USE 381.0mm)	371.425mm SQ.	TOP WASHERS-3.97mmX50.8mm O.D. OUTSIDE, 3.97mmX63.5mm O.D. INSIDE: BOTTOM WASHERS- 9.5mmX63.5mm O.D.	25.4mmX 1016.0mm MAX. TORQUE 271.16N.m		408kg STEEL TYPE 1-15.2m-6.1m,13.7m-7.3m STEEL TYPE 2-15.2m-2.4m ALUM.-TRUSS ARM-15.2m-7.6m ALUM. SINGLE ARM-15.2m-2.4m	15.2m-6.1m,13.7m-7.3m 15.2m-2.4m 12.2m-4.6m 12.2m-2.4m
AT-AA **	356-T6	431.8 mm	266.7mm TO 342.9mm SLOTTED	333.375mm SQ.	330.2mm TO 381.0mm SLOTTED (USE 381.0mm)	390.525mm SQ.	25.4mm-A307 OR 31.75mm-A325 AS REQUIRED.	25.4mmX 1016.0mm OR 31.8mmX 1219.2mm AS REQ'D.	TOP WASHERS-63.5mmDIAM.X9.5mmTHICK BOTTOM WASHERS-69.9mmDIAM.X12.7mm THICK UPPER CORNER STIFFENER RIBS PERMITTED (INSIDE TOP) PER MANUF'S. RECOMMENDATIONS	431kg	
AT-AB **	356-T6	431.8 mm	266.7mm TO 342.9mm SLOTTED	333.375mm SQ.	266.7mm TO 381.0mm SLOTTED	390.525mm SQ.	25.4mm-A307 OR 31.75mm-A325 AS REQUIRED.	25.4mmX 1016.0mm OR 31.8mmX 1219.2mm AS REQ'D.	TOP WASHERS-63.5mmDIA.X9.5mmTHICK BOTTOM WASHERS-69.9mmDIA.X12.7mm THICK ALSO-BOTTOM MTG. SHALL HAVE FOUR-69.9mmX108.0mmX15.9mmRECT. WASHERS & FOUR-63.5mmDIA.X9.5mm WASHERS ON TOP. UPPER CORNER STIFFENER RIBS PERMITTED (INSIDE TOP) PER MANUF'S. RECOMMENDATIONS	373kg	
AT-AC **	356-T6	431.8 mm	254.0mm TO 304.8mm SLOTTED	305.82mm SQ.	254.0mm TO 304.8mm SLOTTED (USE 304.8mm)	332.23mm SQ.	25.4mm-A307 OR 31.75mm-A325 AS REQUIRED.	25.4mmX 1016.0mm OR 31.8mmX 1219.2mm AS REQ'D.	TOP WASHERS-63.5mmDIAM.X9.5mmTHICK BOTTOM WASHERS-69.9mmDIAM.X12.7mm THICK UPPER CORNER STIFFENER RIBS PERMITTED (INSIDE TOP) PER MANUF'S. RECOMMENDATIONS	249kg	
AT-AD **	356-T6	431.8 mm	330.2mm TO 384.175mm SLOTTED	383.29mm SQ.	381.0mm TO 438.15mm (SEE PLANS)	442.98mm SQ.	25.4mm-A307 OR 31.75mm-A325 AS REQUIRED.	25.4mmX 1016.0mm OR 31.8mmX 1219.2mm AS REQ'D.	TOP WASHERS-69.9mmDIA.X12.7mmTHICK BOTTOM WASHERS-69.9mmDIA.X12.7mm THICK UPPER CORNER STIFFENER RIBS PERMITTED (INSIDE TOP) PER MANUF'S. RECOMMENDATIONS	353kg	

** - MEETS 1985 AASHTO

NOTES:

1. THE TRANSFORMER BASE SHALL BE CERTIFIED FOR CONFORMANCE TO THE LATEST AASHTO BREAKAWAY PERFORMANCE CRITERIA.
2. FOR POLE BASE B.C. AT TOP OF ALUMINUM TRANSFORMER BASE AND POLE FOUNDATION B.C. AND DIMENSIONS, REFER TO APPROPRIATE PORTION OF TES-40 FOR STEEL POLES AND THE APPROPRIATE PORTION OF TEL-15B FOR ALUMINUM POLES.
- * 3. OTHER APPROVED GALVANIZED CONNECTING HARDWARE (E.G. NUTS, WASHERS, PLATES, CLIPS, CONNECTING BOLT COVER, ANCHOR BOLTS ETC.) SHALL BE SUPPLIED AS REQUIRED IN ACCORDANCE WITH THE APPROPRIATE POLE SPECIFICATIONS, THE CHARTS ON TES-40 OR TEL-15B, AND THE MANUFACTURERS RECOMMENDATIONS.
4. SHIM AS REQUIRED WITH 1.6mm GALVANIZED STEEL SHIMS.
5. GROUNDING SHALL COMPLY WITH THAT ILLUSTRATED ON TEL-01 AND TES-40 OR TEL-15B.
6. ONE SIDE OF TRANSFORMER BASE NEAR THE DOOR SHALL BE TAPPED FOR GROUNDING LUG.
7. MAXIMUM SLOPE TO THE TRANSFORMER BASE SHALL BE 6:1.



- △ CHANGED AT-VA
- △ UPDATE RIBS
- △ BOTTOM 4 WT.
- △ ADDED UA1, AA, AB, AC AND AD AND ATTENDANT 85 AASHTO DETAILS.
- △ MOVED TORQUE NOTE FOR AT-UA1, DELETED AT-UA, AT-UB, AT-VA, AT-VB, AT-HA, AT-HB, DETAILS "A", "C", "D".
- △ ADDED METRIC

**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
ALUMINUM TRANSFORMER BASE**

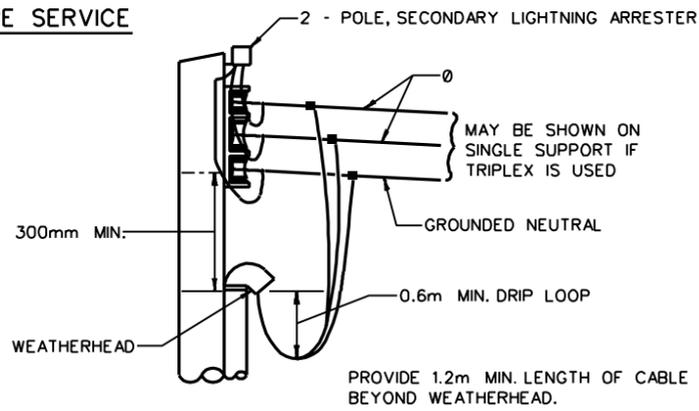
PREPARED: 05/30/80

REVISIONS
△ 9/15/84
△ 10/25/89
△ 9/25/91
△ 2/6/92
△ 01-25-93
△ 09-14-93
△ 04-21-94

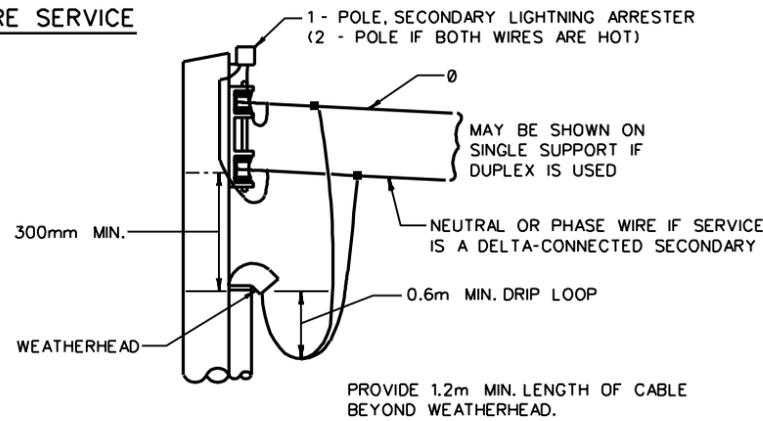
STANDARD SHEET TEL-18

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

3-WIRE SERVICE



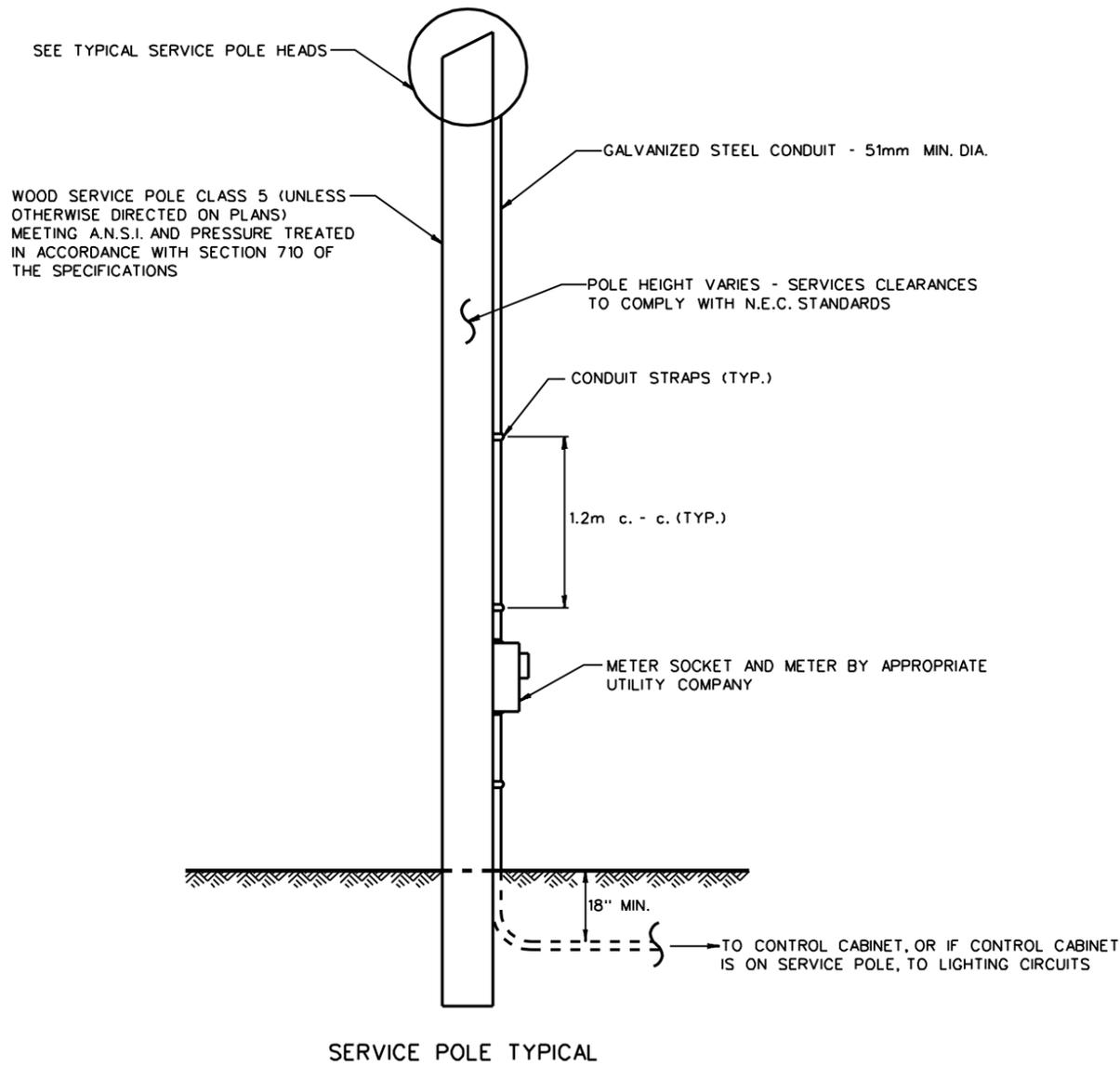
2-WIRE SERVICE



TYPICAL SERVICE POLE HEADS

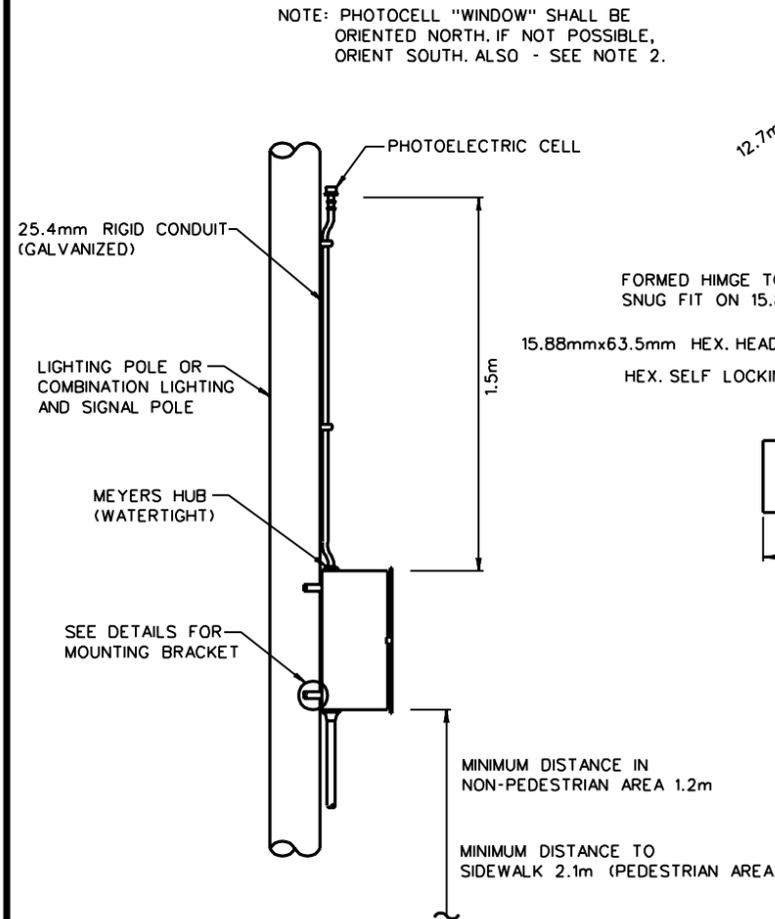
NOTES:

1. FINAL LOCATION OF THE SERVICE POLE SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. PHOTOELECTRIC CELL WILL BE PHOTOCELL - TWISTLOCK TYPE, STANDARD NEMA WITH 70mm ID LOCKING BASE.
3. THE P.E. UNIT SHALL NORMALLY BE MOUNTED ON THE SAME POLE AS THE CONTROL STATION CABINET IS MOUNTED. THE P.E. UNIT FOR GROUND MOUNTED CONTROL STATIONS SHALL BE MOUNTED AT THE ENCLOSURE (AS DETAILED ON TEL-23) UNLESS OTHERWISE DIRECTED ON THE PLANS.
4. CONDUIT CONNECTION TO ALL CABINETS SHALL BE MADE THROUGH THE BASE OF THE CABINETS ONLY (EXCEPT P.E.).
5. THE CONTROL STATION CABINET IS POLE MOUNTED ON THE SERVICE POLE UNLESS OTHERWISE DIRECTED ON THE PLANS (E.G. ON THE FIRST POLE OF LIGHTING CIRCUIT).
6. THE METHOD SHOWN FOR CONTROL STATION CABINET POLE MOUNTING SHALL BE USED ONLY IN SITUATIONS WHERE SMALL CONTROL CABINETS ARE USED. FOR LARGER CABINETS, MOUNTING METHOD ON SHEET TEL-23 SHALL BE USED.

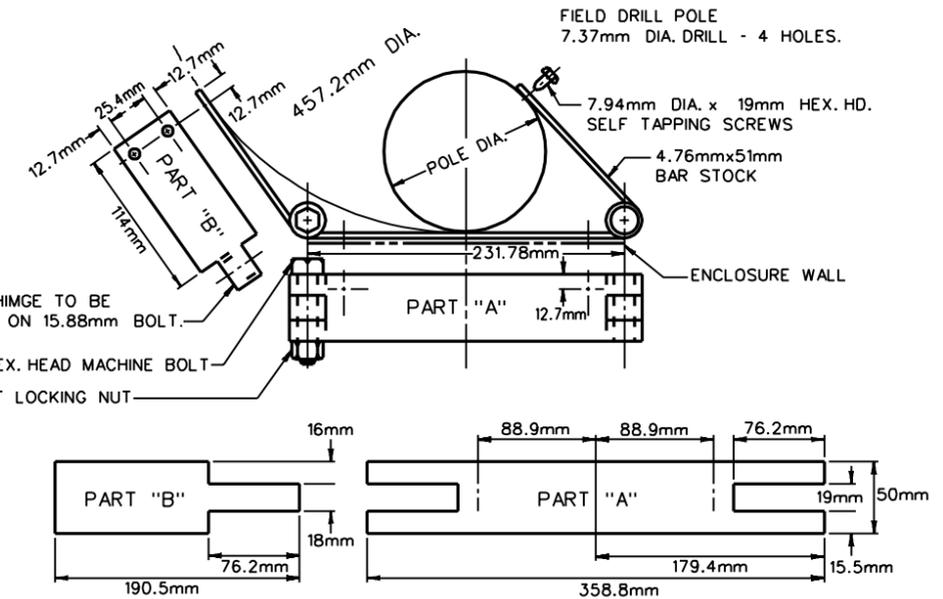


SERVICE POLE TYPICAL

NOTE: PHOTOCELL "WINDOW" SHALL BE ORIENTED NORTH. IF NOT POSSIBLE, ORIENT SOUTH. ALSO - SEE NOTE 2.



CONTROL STATION - POLE MOUNTING DETAIL



MOUNTING BRACKET

- △ SIGNATURE BLOCK
- △ MODIFY SERVICE POLE AND CONTROL STATION DETAILS. CHANGE NOTE 3.
- △ PE CELL RELOCATED, SERVICE POLE REVISED. SAME NOTES (3 AND 5) REVISED
- △ ADDED METRIC

**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
SERVICE POLE AND CONTROL STATION
(POLE MOUNTED ENCLOSURE)**

PREPARED: 09/02/75

REVISIONS
12-10-76
07-07-89
01-26-93
04-18-94

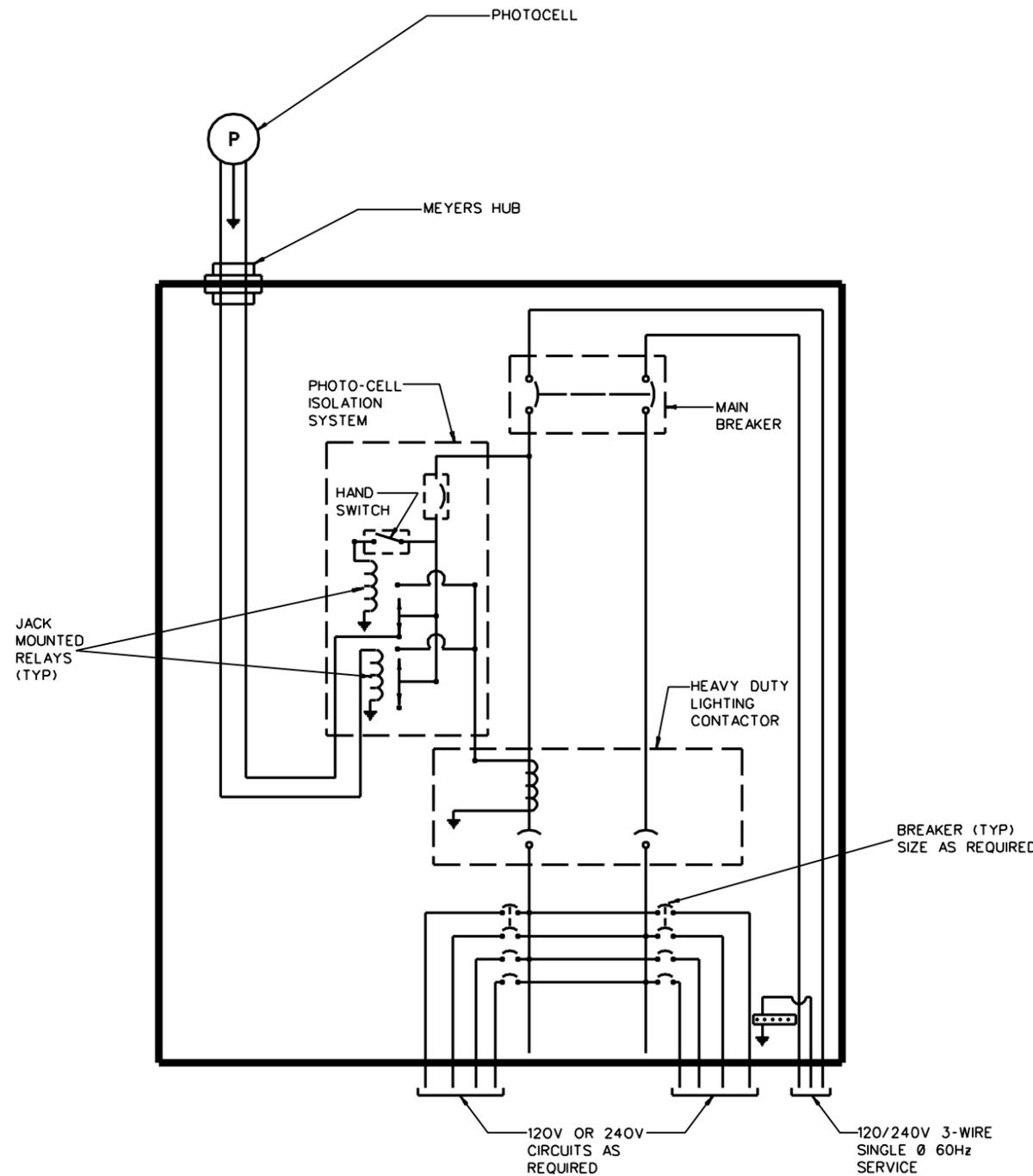
STANDARD SHEET TEL-21

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

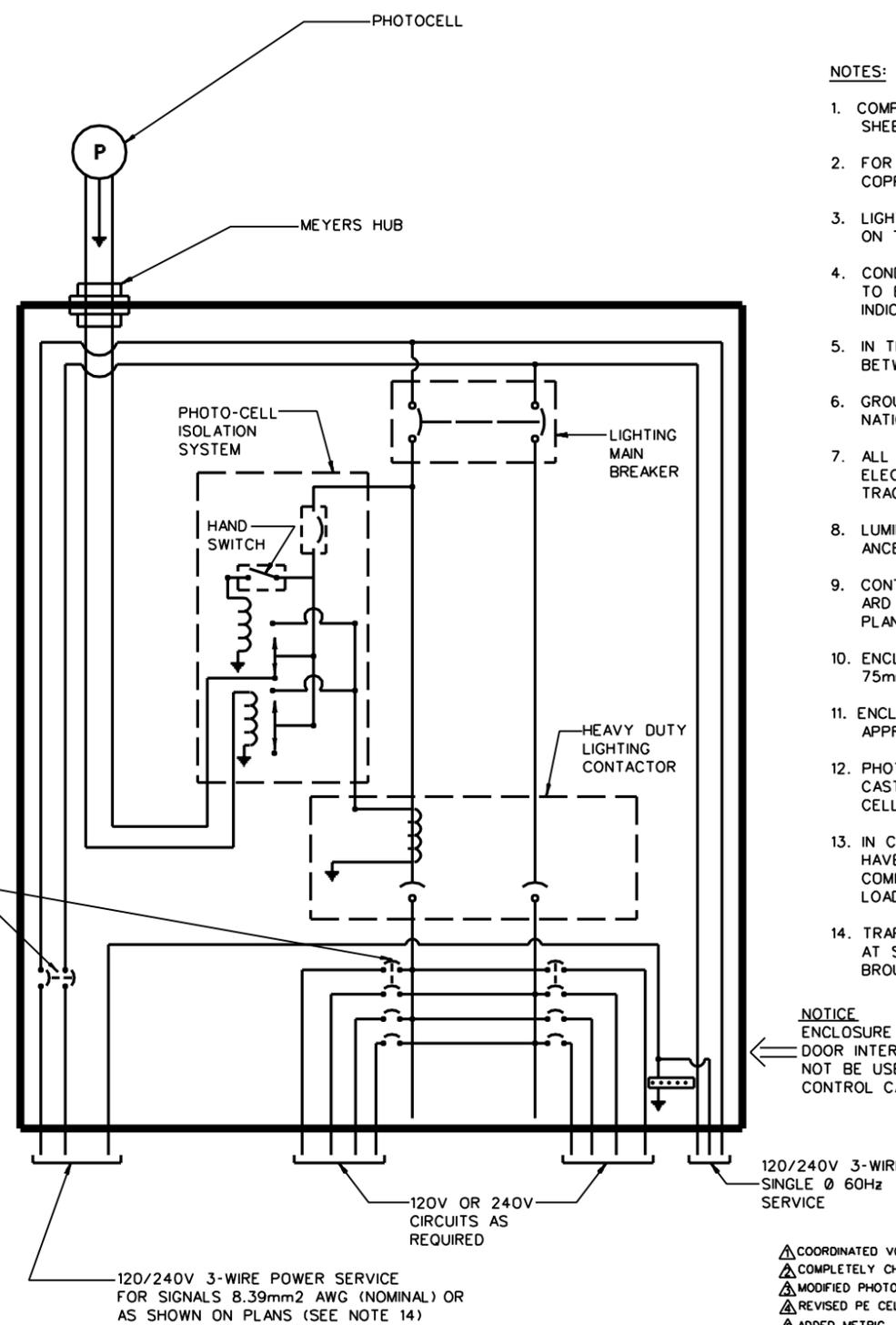
NOTES:

1. COMPONENT SIZES FOR CONTROL CENTERS NOT SPECIFIED ON THIS SHEET WILL BE DETERMINED BY EVALUATION OF THE CIRCUIT LOAD.
2. FOR INTERNAL CONTROL CENTER WIRING #10 AWG STRANDED COPPER WIRE SHALL BE USED UNLESS OTHERWISE SPECIFIED.
3. LIGHTNING PROTECTION FOR CONTROL STATION SHALL BE PROVIDED ON THE SERVICE POLE AT THE WEATHERHEAD AS PER TEL-21.
4. CONDUIT HUBS SHALL BE MOUNTED TO ACCOMMODATE ALL CIRCUITS TO BE SERVED. SIZES SHALL BE COMPATIBLE TO CONDUIT SIZE INDICATED ON PLAN SHEETS. REDUCERS SHALL NOT BE USED.
5. IN THE EVENT THAT A CONTROL STATION COMPONENT SIZE FALLS BETWEEN TWO TRADE SIZES, THE HIGHER TRADE SIZE SHALL BE USED.
6. GROUNDING SYSTEMS SHALL BE INSTALLED IN STRICT COMPLIANCE WITH NATIONAL ELECTRIC CODE, STATE AND LOCAL REGULATIONS.
7. ALL WIRING SHALL BE NEAT AND OF GOOD WORKMANSHIP. NATIONAL ELECTRIC CODE STANDARDS SHALL BE ADHERED TO BY THE CONTRACTOR.
8. LUMINAIRE WIRING AT POLE BASE SHALL BE PERFORMED IN ACCORDANCE WITH STANDARD DRAWING TEL-01.
9. CONTROL CABINET MOUNTING SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TEL-21 OR AS OTHERWISE DIRECTED ON THE CONTRACT PLANS.
10. ENCLOSURES WILL BE NEMA TYPE 4 STAINLESS STEEL CABINET, WITH 75mm LETTERING D.O.H. - ___VOLTS.
11. ENCLOSURE SIZE WILL BE DETERMINED BY COMPONENT SIZE AND APPROVED BY THE ENGINEER.
12. PHOTOELECTRIC UNIT SHALL BE MOUNTED OUTSIDE THE LIGHT ENVELOPE CAST BY THE LIGHTING SYSTEM. PHOTOELECTRIC UNIT WILL BE PHOTO-CELL TWISTLOCK TYPE, STANDARD NEMA WITH 70mm I.D. LOCKING BASE.
13. IN CASES WHERE THE LINE-SIDE OF THE ELECTRICAL SERVICE DOES NOT HAVE A LIGHTNING ARRESTER INSTALLED BY THE SERVING UTILITY COMPANY: THE UNIT MUST BE INSTALLED BY THE CONTRACTOR ON THE LOAD-SIDE OF THE SYSTEM WITHIN THE CONTROL CENTER ENCLOSURE.
14. TRAFFIC SIGNAL FEED GOES TO EXTERNAL ENCLOSED CIRCUIT BREAKER AT SIGNAL (SEE STANDARD SPECIFICATIONS). NOTE ONLY 120V IS TO BE BROUGHT INTO THE SIGNAL CONTROLLER CABINET.

NOTICE
ENCLOSURE POWER-OFF
DOOR INTERLOCK SHALL
NOT BE USED FOR THIS
CONTROL CABINET



TYPICAL WIRING
SINGLE PHASE - POWER SERVICE
LIGHTING ONLY



TYPICAL WIRING
SINGLE PHASE - POWER SERVICE
LIGHTING WITH SEPARATE FEED FOR
TRAFFIC SIGNALS

- ▲ COORDINATED VOLTAGES WITH TEL-01.
- ▲ COMPLETELY CHANGED TYPICAL WIRING.
- ▲ MODIFIED PHOTOELECTRIC CELL WIRING SCHEME.
- ▲ REVISED PE CELL, ADDED COMBINATION SIGNAL AND LIGHTING CONTROLLER
- ▲ ADDED METRIC

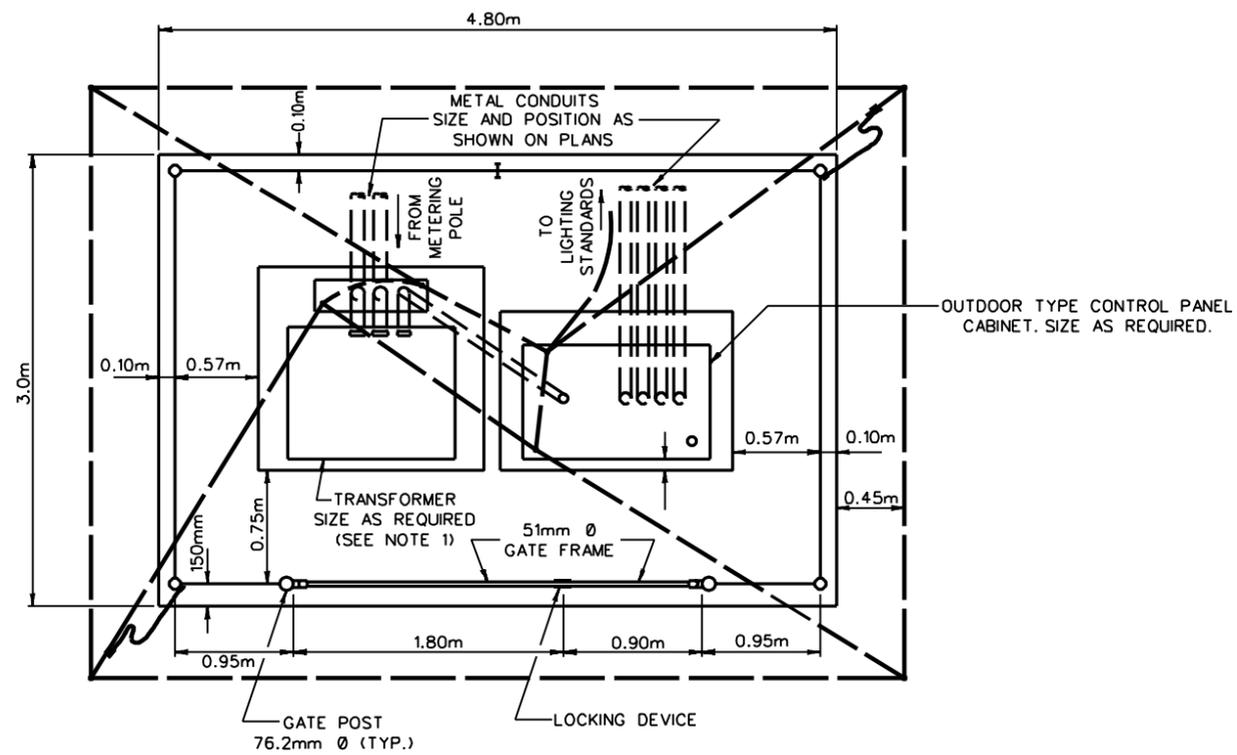
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
CONTROL STATION (POLE MOUNTED)

PREPARED: 09/02/75

REVISIONS
▲ 12-10-76
▲ 12-03-80
▲ 07-03-89
▲ 01-26-93
▲ 04-14-94

STANDARD SHEET TEL-22

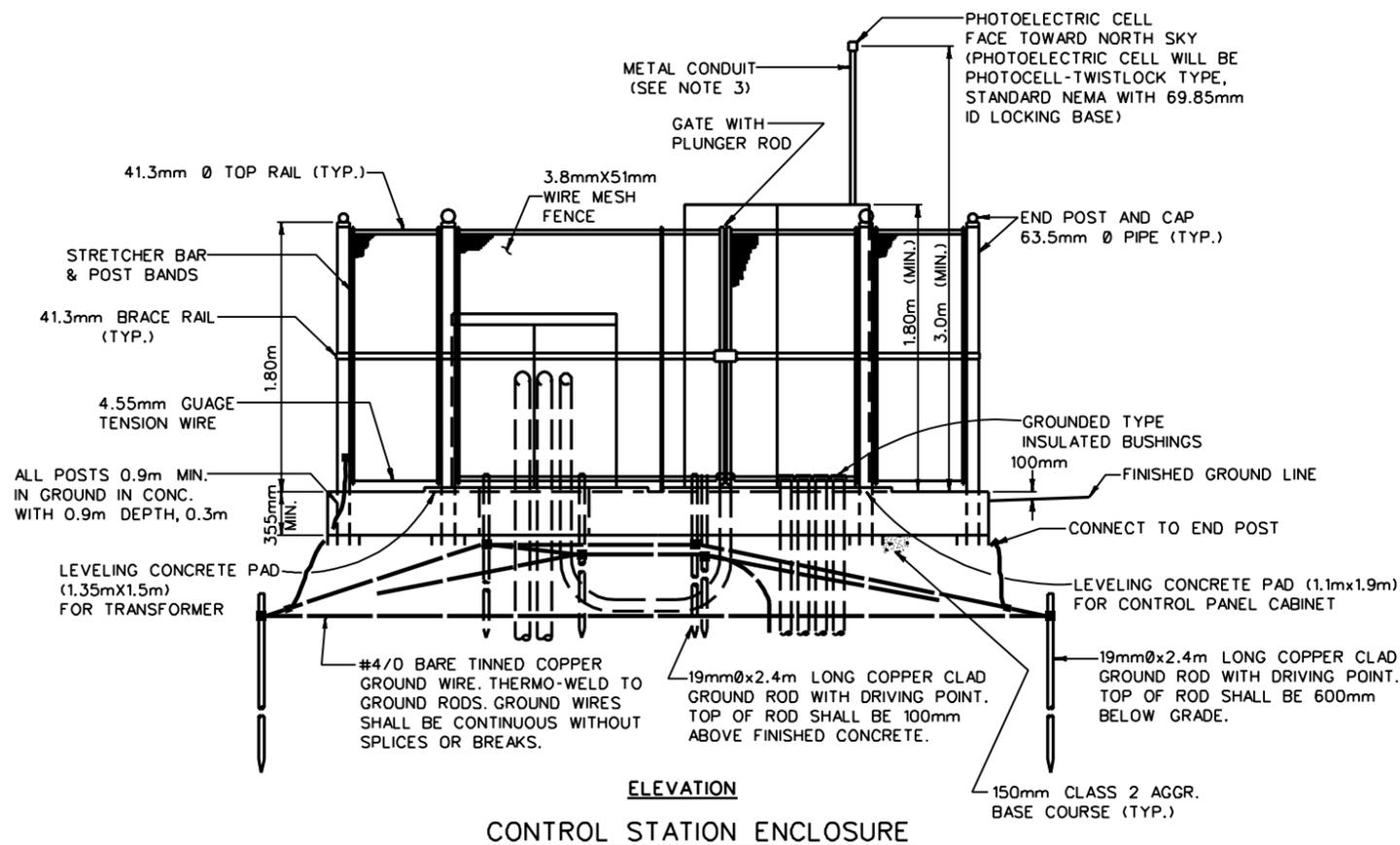
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



PLAN

GENERAL NOTES:

1. TRANSFORMER SHALL ONLY BE INCLUDED IN THE ENCLOSURE IF CALLED FOR ON PLANS.
2. IF TRANSFORMER IS NOT INCLUDED, THE DIMENSIONS OF THE ENCLOSURE SHALL BE REDUCED TO 3.0m x 3.3m x 0.36m.
3. CONDUIT MOUNTED P.E. UNIT TO BE USED IF SYSTEM EMPLOYS PRIMARY VOLTAGE ON METERING POLE OR IF NOTED ON THE CONTRACT PLANS.
4. CONDUIT TO SUPPORT P.E. UNIT SHALL BE 38.1mm O.D. GALVANIZED STEEL.
5. REINFORCEMENT IN FOUNDATION SHALL BE #19's SPACED AT 200mm DEPTH WISE AND 400mm LENGTH WISE AT 75mm FROM BOTTOM OF FOUNDATION.
6. ALL CONCRETE SHALL BE CLASS "B".
7. THE ENCLOSURE MUST HAVE DOUBLE DOORS AND BE NEMA TYPE 4. IT MUST HAVE ADJUSTABLE MOUNTING CHANNELS ON BOTH SIDES AND ON THE BACK WALL. IT MUST BE OF 3.18mm THICK ALUMINUM TYPE 5052-H3 AND BE REINFORCED TO SUPPORT LOADING AND DOORWAYS.
8. ENCLOSURE SIZES WILL BE DETERMINED BY COMPONENT REQUIREMENTS AND SUBMITTED FOR APPROVAL TO THE ENGINEER.



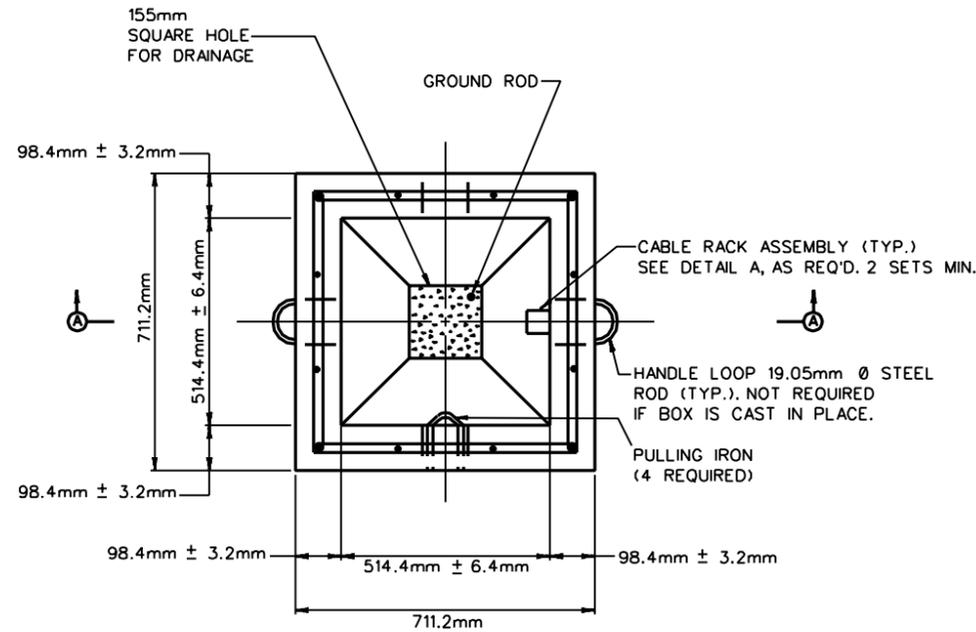
- △ SIGNATURE BLOCK
- △ CHANGED GROUND RODS
- △ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
CONTROL STATION (GROUND MOUNTED)
ENCLOSURE

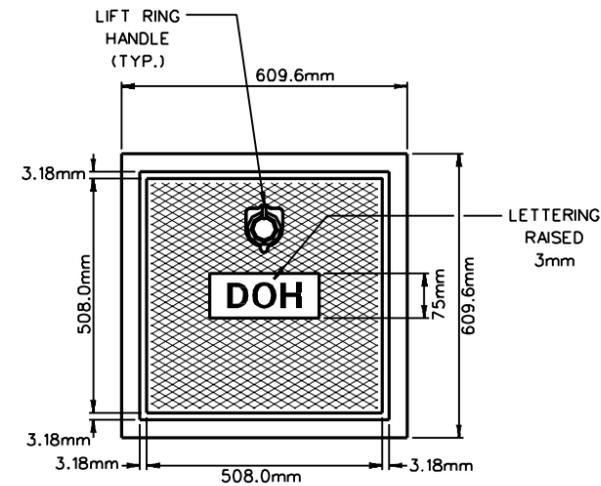
PREPARED: 09/02/75

REVISIONS
△ 12-10-75
△ 09-15-84
△ 04-15-94

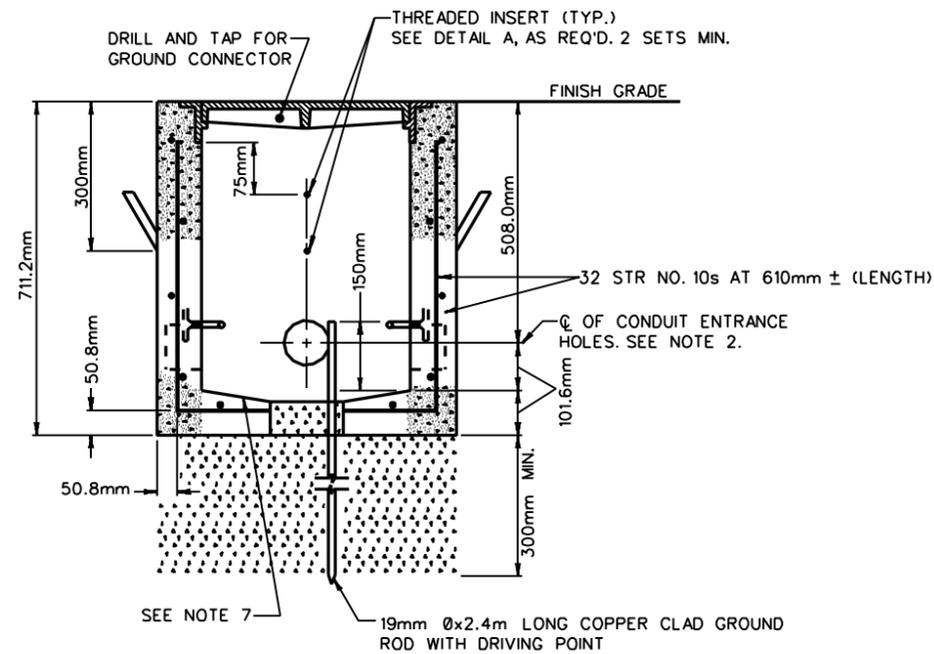
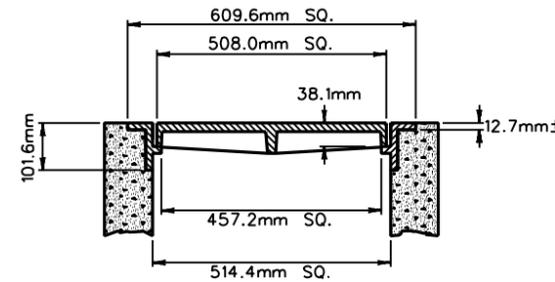
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



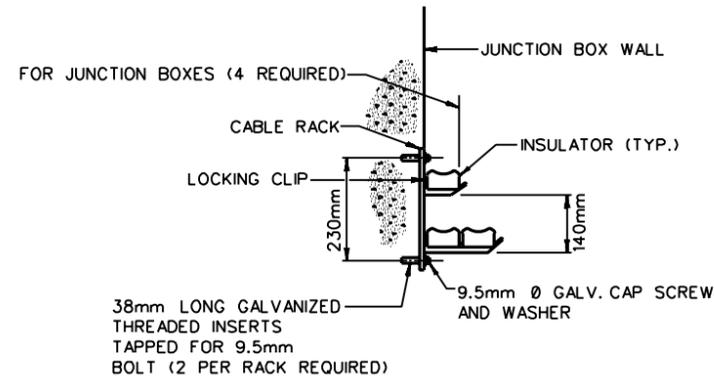
PLAN WITH COVER REMOVED



PLAN



SECTION A - A
CONCRETE JUNCTION BOX



DETAIL A

CABLE RACK ASSEMBLY

GENERAL NOTES

1. CONCRETE WHICH IS CAST IN PLACE SHALL MEET CLASS "B". CONCRETE WHICH IS PRECAST SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 21MPa IN 28 DAYS AND AN AIR CONTENT OF 7 +/- 2 PERCENT.
2. ALL CONDUIT ENTRANCE HOLES TO BE 75mm DIAMETER WITH 25mm KNOCKOUT WALL. FOUR HOLES PER JUNCTION BOX ARE REQUIRED UNLESS NOTED OTHERWISE.
3. CONDUCTORS SHALL BE SUPPORTED ON CABLE RACKS IN JUNCTION BOXES 460X460. JUNCTION BOXES (460X460) ARE TO HAVE END BELLS OR INSULATED BUSHINGS INSTALLED BEFORE ANY CABLE IS PULLED IN CONDUIT.
4. THIS JUNCTION BOX SHALL HAVE TYPE H-20 LOADING CAPACITY, BE WATERPROOF, AND THE COVER FRAME SHALL BE CAST INTEGRAL WITH THE CONCRETE BOX. ALL PORTIONS OF THIS JUNCTION BOX SHALL MEET THE REQUIREMENTS OF SECTION 715.42.11.2 OF THE SPECIFICATIONS.
5. THE FRAME CASTINGS SHALL BE CAST IRON MEETING THE REQUIREMENTS OF SECTION 709.10 OF THE SPECIFICATIONS. THE COVER SHALL BE DUCTILE IRON MEETING ASTM A 536, GRADE 80-55-6, 65-45-12, OR 60-40-18.
6. FRAMES AND COVERS ARE SHOWN AS EXAMPLES ONLY. SHOP DRAWINGS SHALL BE SUBMITTED IF DETAILS AND DIMENSIONS VARY.
7. BOTTOM OF JUNCTION BOXES SHALL BE SLOPED TO DRAIN HOLE.
8. FOR TYPE H, 255X255 OR TYPE L, 200X200, SEE TES-50.

- △ DECREASED ALL DIMENSIONS
- △ RACK SPACING
- △ CHANGED NOTE 4
- △ CHANGED GROUND ROD AND NOTE 4
- △ REVISED NOTES 1 AND 4
- △ ADDED METRIC

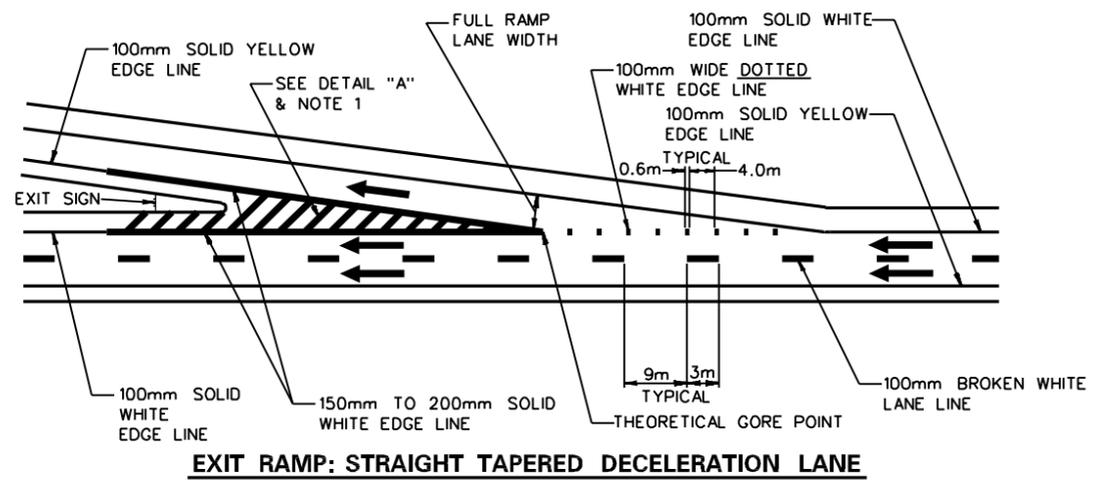
WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
JUNCTION BOX - TYPE H,
460 x 460

PREPARED: 07/18/75

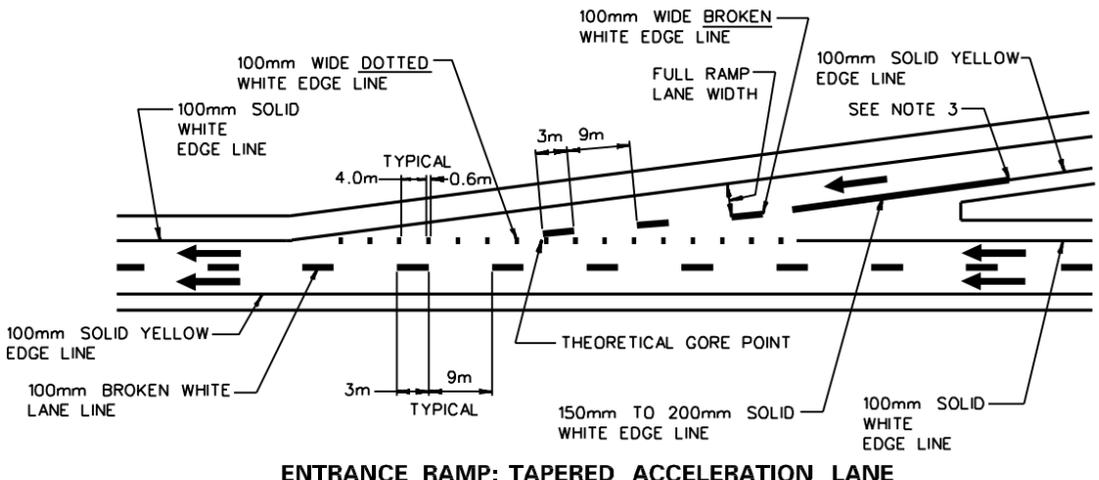
REVISIONS

△	07-22-76
△	12-10-76
△	08-11-77
△	09-15-84
△	01-27-93
△	03-31-94

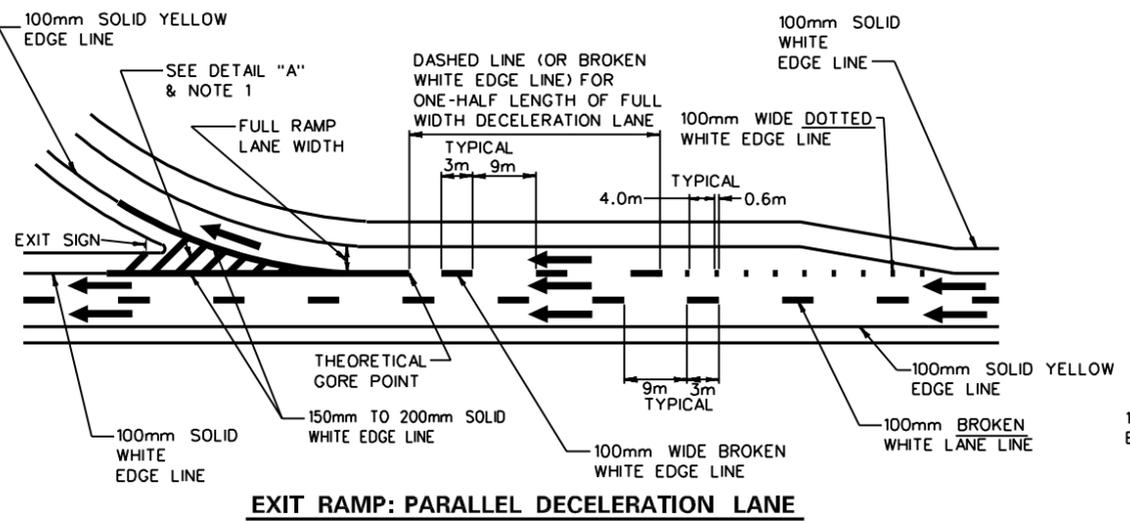
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							



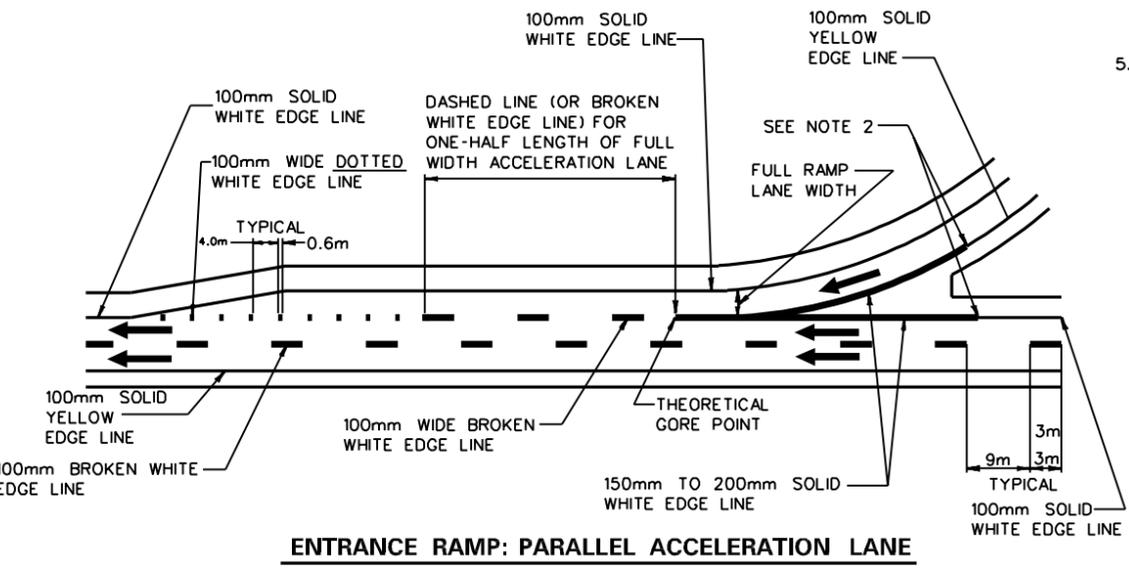
EXIT RAMP: STRAIGHT TAPERED DECELERATION LANE



ENTRANCE RAMP: TAPERED ACCELERATION LANE



EXIT RAMP: PARALLEL DECELERATION LANE



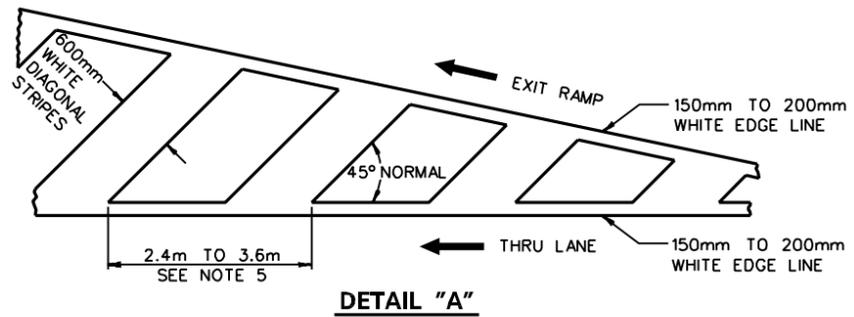
ENTRANCE RAMP: PARALLEL ACCELERATION LANE

GENERAL NOTES

1. THE 150mm TO 200mm EDGE LINE SHALL BE EXTENDED TO A POINT APPROXIMATELY 7.6m BEYOND THE EXIT SIGN ON BOTH SIDES OF THE GORE.
2. THE 150mm TO 200mm EDGE LINE ON BOTH SIDES OF THE GORE SHALL BE PLACED BEGINNING AT A POINT APPROXIMATELY 7.6m BEFORE THE POINT WHERE THE RAMP AND MAINLINE SHOULDER AREAS JOIN AND EXTEND UNTIL THE 150mm TO 200mm LINES MERGE INTO ONE 150mm TO 200mm LINE.
3. THE 150mm TO 200mm EDGE LINE ON THE RIGHT SIDE OF THE GORE SHALL BE PLACED BEGINNING AT A POINT APPROXIMATELY 7.6m BEFORE THE POINT WHERE THE RAMP AND MAINLINE SHOULDER AREAS JOIN AND EXTEND FOR APPROXIMATELY ONE-HALF THE LENGTH TO THE THEORETICAL GORE POINT.
4. IF TYPICAL MARKINGS AS SHOWN ON THIS SHEET DO NOT APPLY, MARKINGS WILL BE AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.
5. THIS DIMENSION SHALL BE 3.6m UNLESS OTHERWISE SPECIFIED. IN NO CASE SHALL THIS DIMENSION BE LESS THAN 2.4m OR GREATER THAN 3.6m.

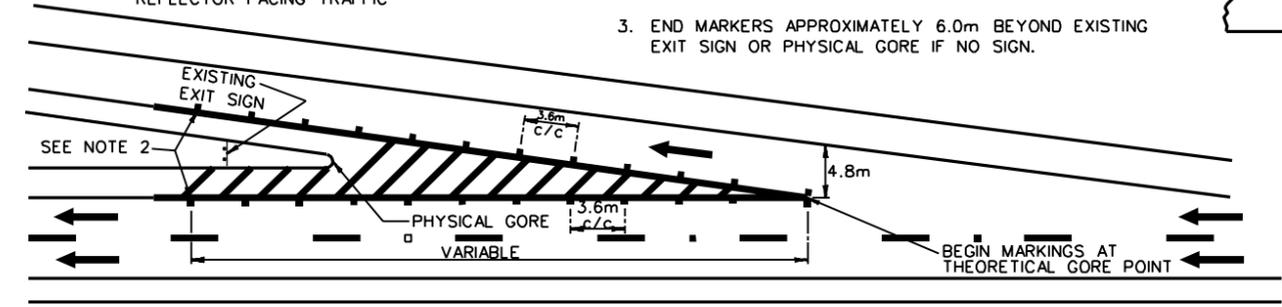
NOTES:

- - BI-DIRECTIONAL (WHITE/RED) WITH WHITE REFLECTOR FACING TRAFFIC
 - - MONO-DIRECTIONAL WITH WHITE REFLECTOR FACING TRAFFIC
1. MARKER PLACEMENT AT GORES ONLY WHEN SPECIFIED.
 2. THE SPACING BETWEEN MARKERS IN THE GORE AREA SHOULD BE APPROXIMATELY 3.6m APART AND CENTERED BETWEEN THE STRIPES (IF THEY ARE EXISTING).
 3. END MARKERS APPROXIMATELY 6.0m BEYOND EXISTING EXIT SIGN OR PHYSICAL GORE IF NO SIGN.



DETAIL "A"

- △ EDGE LINES
- △ RAMP EDGE LINES
- △ MODIFIED SPACING & DOTTED LINES
- △ WHOLE SHEET
- △ ADDED NOTE ABOUT ARROWS
- △ ADDED METRIC



GORE AREAS: MARKER PLACEMENT

NOTE:
← THIS ARROW ONLY INDICATES DIRECTION OF TRAVEL.

**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
TYPICAL MARKINGS OF
INTERCHANGE RAMP**

PREPARED: 07/00/71

REVISIONS
△ 05-00-73
△ 10-00-74
△ 11-23-77
△ 01-15-85
△ 12-09-93
△ 04-12-94

STANDARD SHEET TEM-1

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

GENERAL NOTES

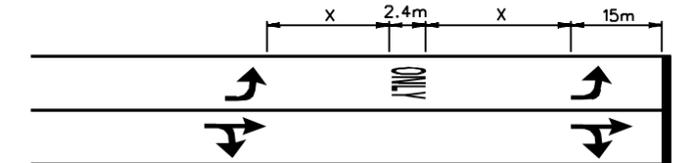
- BROKEN LINES SHALL BE 3m IN LENGTH WITH 9m SPACINGS, UNLESS OTHERWISE SPECIFIED. THE RATIO OF PAINTED LINE LENGTH TO SKIP LENGTH SHALL BE 1 TO 3.
- THE TURNING RADIUS EXTENSION SHALL BE OPTIONAL OR AS INDICATED ON THE PLANS AND SHALL BE EITHER AN EXTENSION OF THE SOLID WHITE CHANNELIZING LINE AND/OR C-4 WHITE MARKERS ON 300mm CENTERS, EVERY FIFTH ONE TO BE REFLECTIVE, OTHERS TO BE NON-REFLECTIVE.
- THE DISTANCE FROM THE RAILROAD CROSSING MARKING TO THE NEAREST TRACK WILL VARY ACCORDING TO THE APPROACH SPEED AND THE SIGHT DISTANCE OF THE VEHICULAR TRAFFIC APPROACHING, BUT SHOULD NOT BE LESS THAN 15 METERS. ALSO SEE TABLE.
- ALL RXR MARKINGS AND LINES SHALL BE WHITE. ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL RXR SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.
- INES UP TO 300mm MAY BE REQUIRED UNDER SPECIAL CIRCUMSTANCES WHERE NO ADVANCE STOP LINE IS PROVIDED OR WHERE VEHICULAR SPEEDS EXCEED 60km/h OR WHERE CROSSWALKS ARE UNEXPECTED. WIDTH AND SPACING OF LINES SHALL BE AS SPECIFIED.
- WHEN DIAGONAL LINES ARE USED TO MARK A CROSSWALK, THE TRANSVERSE CROSSWALK LINES MAY BE OMITTED.
- LANE LINE EXTENSIONS THROUGH INTERSECTION MAY BE EITHER 150mm LONG LINE (100mm WIDTH) WITH 600mm SPACING OR WHITE C-4 MARKERS ON 300mm CENTERS, EVERY FIFTH ONE TO BE REFLECTIVE, OTHERS TO BE NON-REFLECTIVE (SEE TEM-3).
- STOP LINES SHALL BE 300mm TO 600mm WIDE EXTENDING ACROSS ALL APPROACH LANES. STOP LINES SHOULD BE PLACED 1.2m IN ADVANCE OF AND PARALLEL TO THE NEAREST CROSSWALK LINE. IN THE ABSENCE OF A MARKED CROSSWALK, THE STOP LINE SHOULD BE PLACED AT THE DESIRED STOPPING POINT AS NEAR AS POSSIBLE TO THE INTERSECTING ROADWAY, BUT IN NO CASE MORE THAN 9.2m OR LESS THAN 1.2m FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY.
- SUPPLEMENTAL PAVEMENT WORD AND/OR SYMBOL MARKINGS SHOULD BE LIMITED TO NOT MORE THAN A TOTAL OF THREE LINES OF INFORMATION (WORDS AND/OR SYMBOLS). THEY SHALL BE WHITE IN COLOR. LETTERS, SYMBOLS AND NUMERALS SHALL BE A MINIMUM OF 2.4m IN HEIGHT. THE WORD MARKING "ONLY" AND THE ARROW SHALL BE USED WHERE A MOVEMENT THAT WOULD OTHERWISE BE LEGAL IS TO BE PROHIBITED. THE SPACE BETWEEN LINES SHOULD BE AT LEAST FOUR TIMES THE HEIGHT OF THE CHARACTERS FOR LOW SPEEDS BUT NOT MORE THAN TEN TIMES THE HEIGHT OF THE CHARACTERS UNDER ANY CONDITIONS. LOCATION OF SUPPLEMENTAL PAVEMENT MARKINGS SHALL BE AS SHOWN BELOW OR AS DIMENSIONED ON THE PLANS.
- A NO-PASSING ZONE AT A HORIZONTAL OR VERTICAL CURVE IS WARRANTED WHERE THE SIGHT DISTANCE IS LESS THAN THE MINIMUM NECESSARY FOR SAFE PASSING BASED ON ONE OF THREE PREVAILING OFF PEAK 85 PERCENTILE SPEED.

85 PERCENTILE SPEED (km/h)	MINIMUM PASSING SIGHT DISTANCE (METERS)
60	180m
80	240m
100	300m

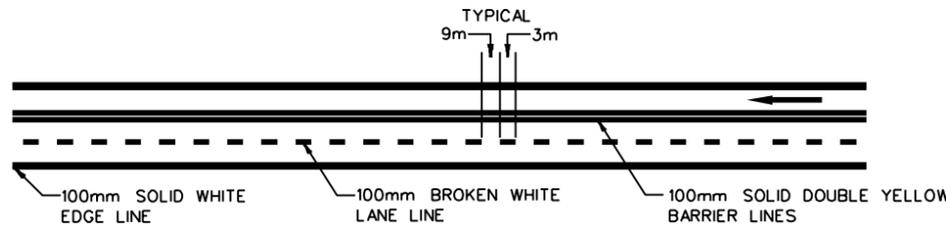
SEE MUTCD SECTION 3B-5 FOR MORE DETAILS.
- ALL DOUBLE LINES SHALL BE SPACED 200mm CENTER TO CENTER.
- WHERE APPLIED TO PORTLAND CEMENT CONCRETE PAVEMENT, THE CENTER OF THE STRIPE SHALL BE OFFSET TO THE LEFT AND 100mm FROM THE LONGITUDINAL JOINT.
- NORMALLY, THE MAXIMUM LANE WIDTH SHALL BE 3.6m, EXCEPT A SINGLE-LANE RAMP WIDTH SHALL BE 4.8m.

TYPICAL LANE-USE MARKING

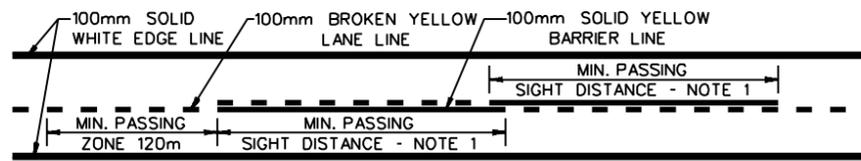
* REQUIRED LANE-USE MARKINGS. ALL OTHER SHOWN LANE USE ARROWS ON THIS SHEET ARE OPTIONAL AS CALLED FOR ON PLANS.



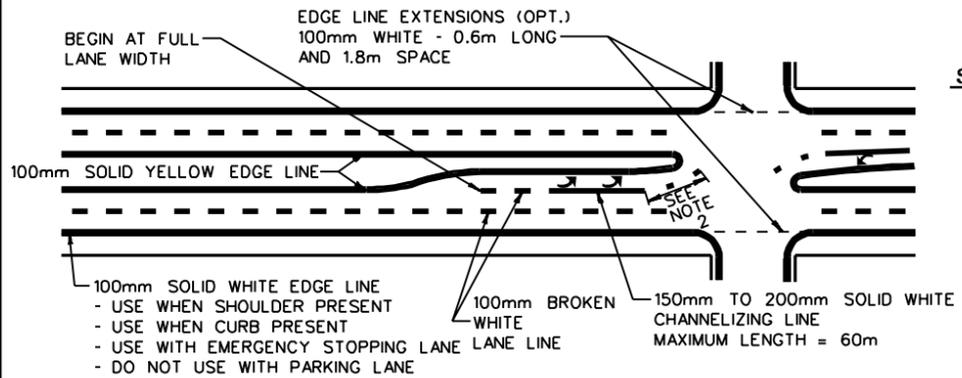
X - 9.6m WHEN OPERATING SPEED IS 64.37km/h AND BELOW
X - 24.4m WHEN OPERATING SPEED IS ABOVE 64.37km/h



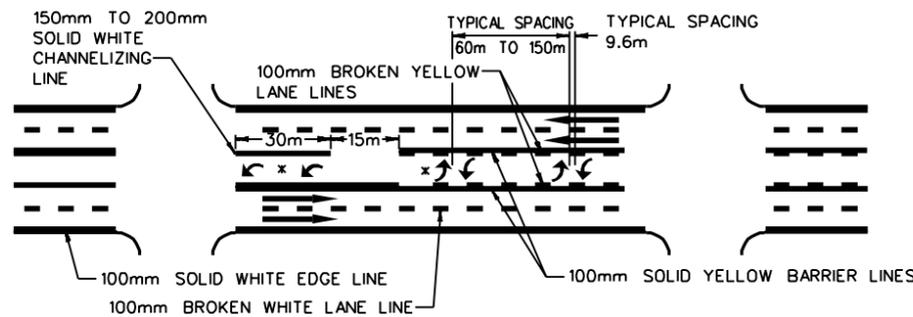
(A) TWO WAY MARKING, TRUCK CLIMBING LANE



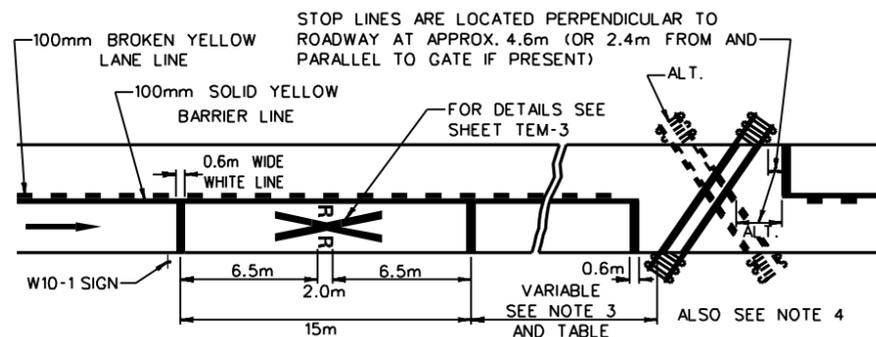
(B) TWO WAY MARKING FOR PASSING ZONE



(C) DIVIDED HIGHWAY WITH MEDIAN



(D) TWO WAY MARKING, MULTI-LANE HIGHWAY WITH DUAL LEFT TURN CHANNELIZATION



(E) TWO WAY MARKING, RAILROAD-HIGHWAY GRADE CROSSINGS

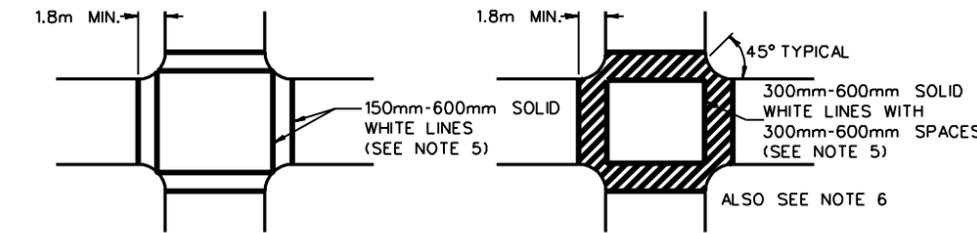
** - THIS DISTANCE MAY BE REDUCED TO A MINIMUM OF 15m DEPENDING UPON LOCAL CONDITIONS. A MINIMUM OF 30m IS GENERALLY NECESSARY FOR THE EFFECTIVE DISPLAY OF PAVEMENT MARKINGS. IF THE 30m MINIMUM CANNOT BE OBTAINED, MARKINGS MAY BE OMITTED.

RAILROAD CROSSING MARKING DISTANCE TABLE

POSTED OR 85TH PERCENTILE TRAFFIC SPEED	DISTANCE FROM NEAR RAIL TO FIRST LINE 45m PLUS VARIABLE
30km/h	30m **
40km/h	30m **
50km/h	30m
60km/h	45m
65km/h	70m
70km/h	90m
80km/h	115m
90km/h	140m
100km/h	170m

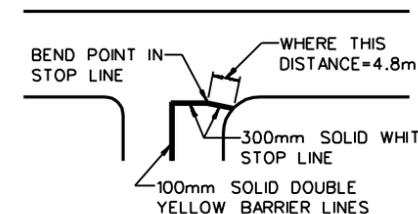
NOTE: VALUES FOR GUIDANCE, ARE TO BE APPLIED WITH ENGINEERING JUDGEMENT TO ASSURE EFFECTIVENESS.

NOTE: THIS ARROW ONLY INDICATES DIRECTION OF TRAVEL.

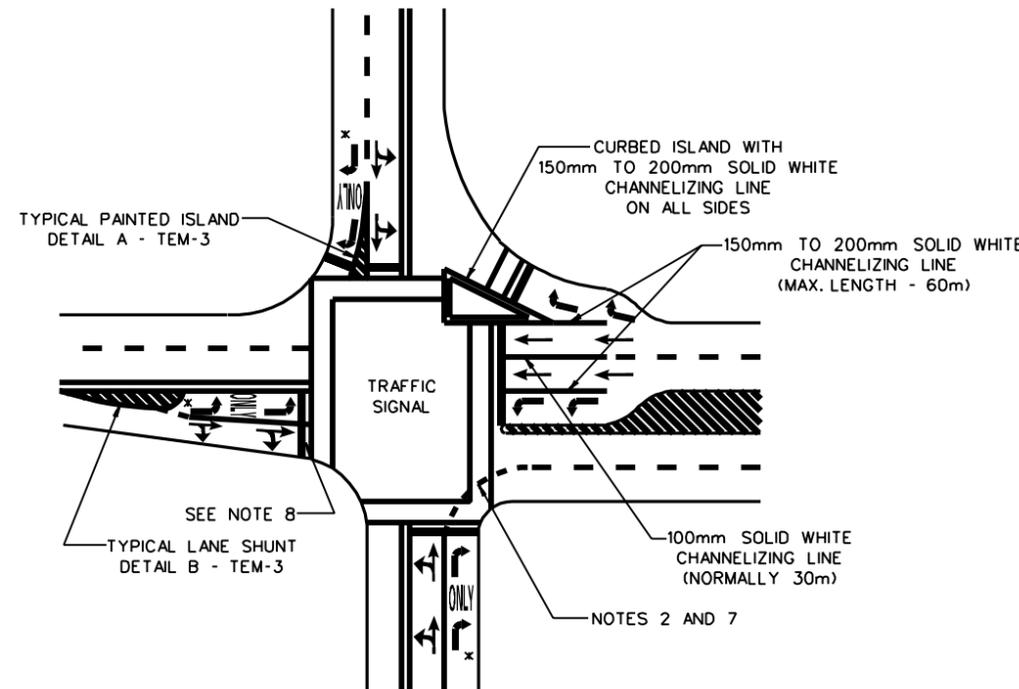


(F) TRANSVERSE CROSSWALK MARKINGS

(G) DIAGONAL CROSSWALK MARKINGS (USED FOR ADDED VISIBILITY)



(H) METHODOLOGY FOR INSTALLING (BENDING) STOP LINES AT WIDE THROATED INTERSECTIONS



(I) TYPICAL INTERSECTIONS MARKINGS

- △ EDGE LINES
- △ MODIFIED SPACING & NOTES 1, 2, 7 & 11
- △ WHOLE SHEET
- △ ADDED R.R. DISTANCE TABLE AND EDGE LINE EXTENSION NOTE TO DETAIL C
- △ ADDED METRIC

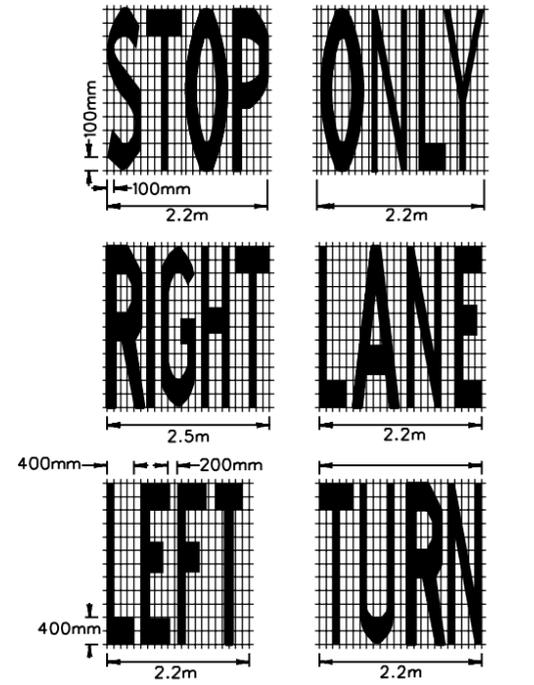
PREPARED: 07/00/71

REVISIONS
05-00-72
05-00-73
08-28-75
11-23-77
01-15-85
02-03-93
04-12-94

**WEST VIRGINIA DIVISION OF HIGHWAYS
STANDARD DETAIL
TYPICAL PAVEMENT
MARKINGS**

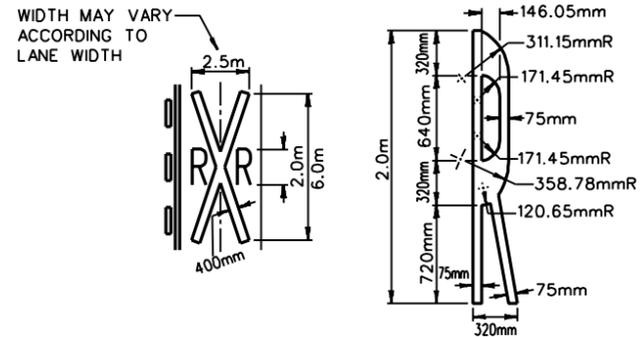
STANDARD SHEET TEM-2

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

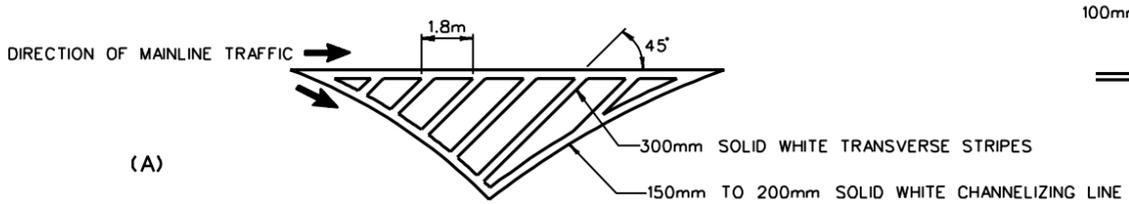


ALL LETTERS SHALL HAVE A MIN. HEIGHT OF 2.5m

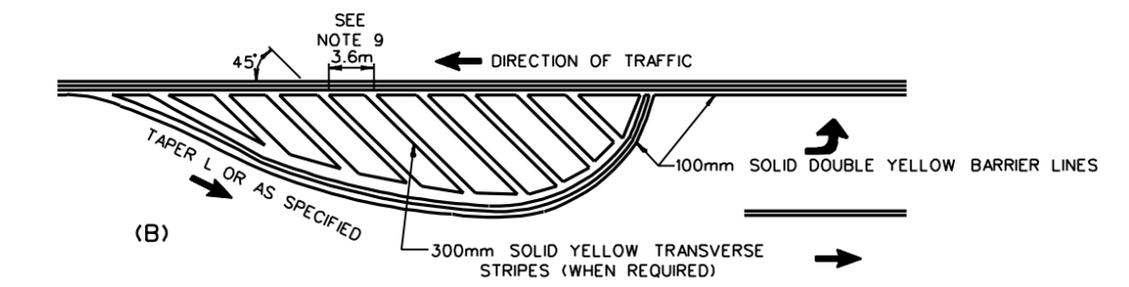
ELONGATED LETTERS



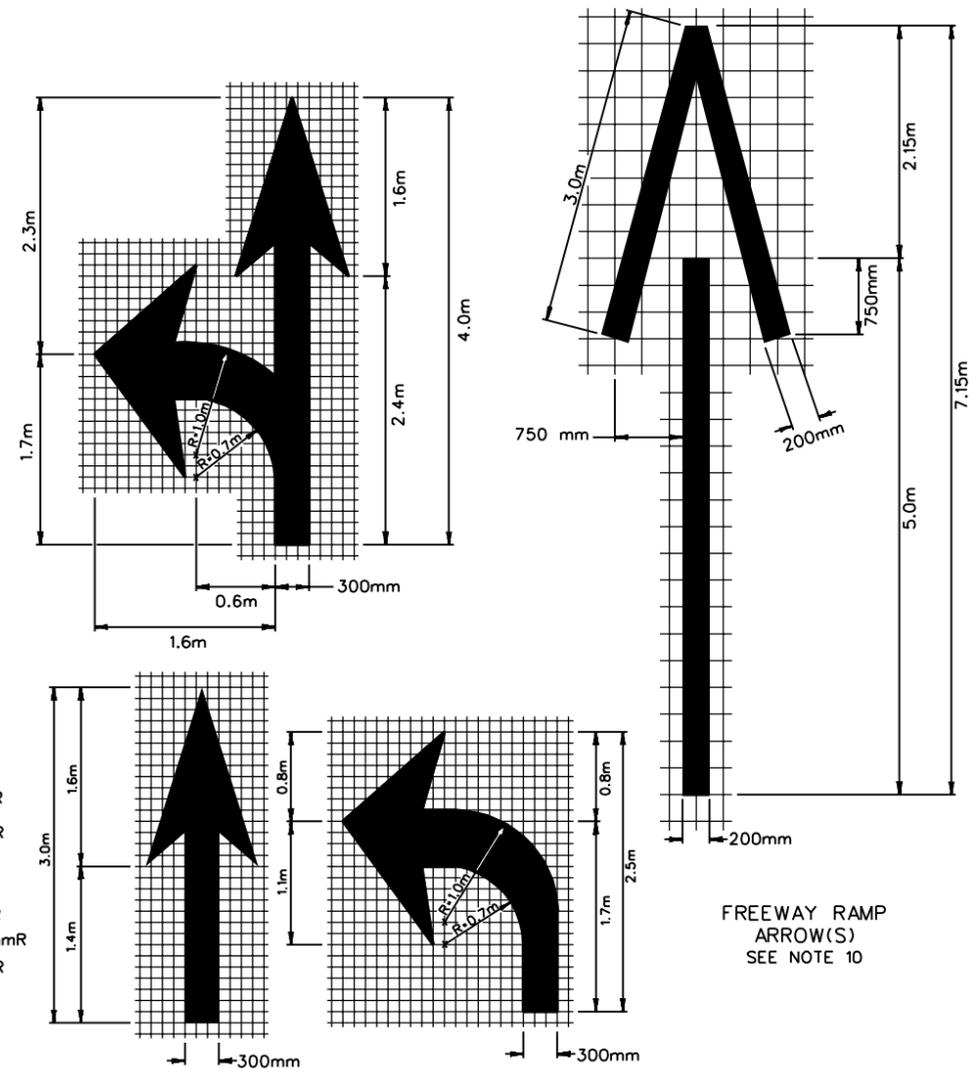
MARKINGS FOR RAILROAD-HIGHWAY CROSSINGS



TYPICAL PAINTED ISLAND



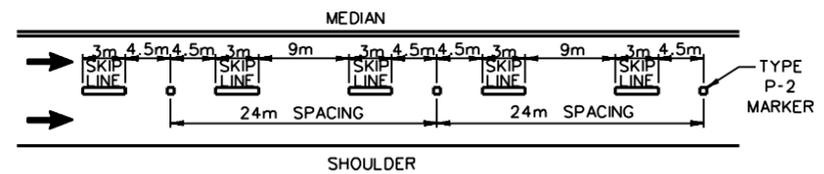
TYPICAL LANE SHUNT — UNDIVIDED HIGHWAY



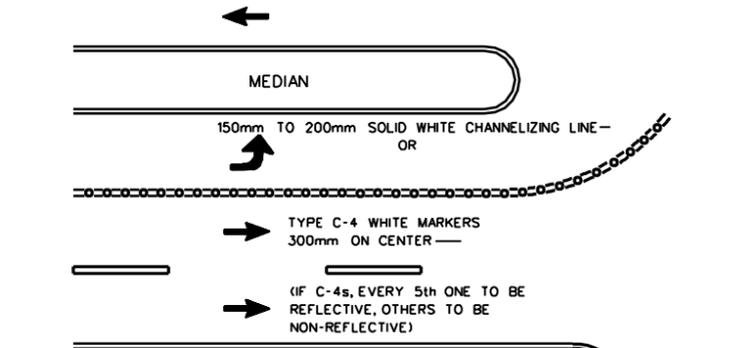
ELONGATED ARROWS

FREeway RAMP ARROW(S) SEE NOTE 10

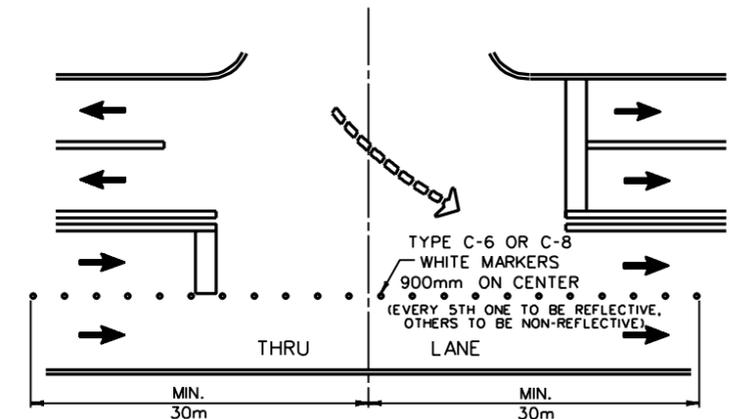
NOTE: INSTALL "P" MARKERS ON THE SAME ALIGNMENT AS THE PAVEMENT MARKINGS



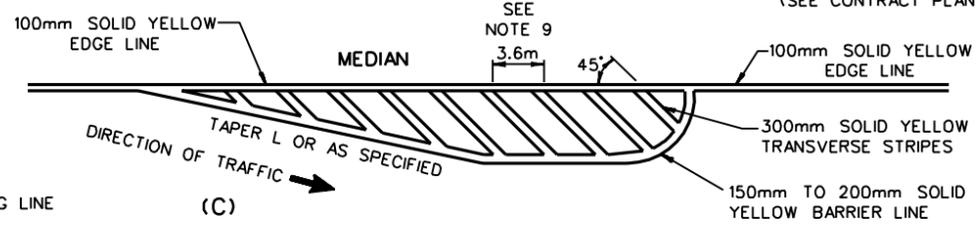
(D) TYPE "P" MARKERS



(E) TYPE C-4 MARKERS ("DOTS")



(F) TYPE C-6 OR C-8 MARKERS (SEE CONTRACT PLANS)



TYPICAL LANE SHUNT — DIVIDED HIGHWAY

- GENERAL NOTES**
- LOCATION OF WORDS AND SYMBOLS SHALL BE AS SHOWN ON THE PLANS OR AS OTHERWISE SPECIFIED.
 - TYPICAL PLACEMENT OF WORD AND SYMBOL MARKINGS IS SHOWN ON STANDARD SHEET TEM-2.
 - IF MESSAGES ON PAVEMENT CONSIST OF MORE THAN ONE WORD IT SHOULD BE READ "UP", THAT IS THE FIRST WORD SHOULD BE NEAREST THE DRIVER.
 - ALL WORD AND SYMBOL MARKINGS SHALL BE WHITE IN COLOR. (EXCEPTION: MARKINGS VISIBLE ONLY TO TRAFFIC PROCEEDING IN THE WRONG DIRECTION MAY BE RED).
 - WORD AND SYMBOL MARKINGS SHALL BE MADE OF COLD-LAID PLASTIC OR PREFORMED MARKINGS OR PAINT AS INDICATED ON THE CONTRACT PLANS.
 - SEE SHEET TEM-4 FOR DETAILS OF TYPE "P", "R" AND "C" MARKERS.
 - TYPE "P" AND "R-4" MARKERS MAY HAVE EITHER MONODIRECTIONAL OR BIDIRECTIONAL REFLECTORIZATION AS SHOWN ON THE PLAN OR AS OTHERWISE SPECIFIED.
 - IN MOST CASES, YELLOW Ps, R-4s, C-4s OR C-6s OR C-8s WILL BE BIDIRECTIONAL AND THE WHITE Ps, R-4s, C-4s OR C-6s OR C-8s WILL BE MONODIRECTIONAL.
 - THIS DIMENSION SHALL BE 12 FEET UNLESS OTHERWISE SPECIFIED. IN NO CASE SHALL THIS DIMENSION BE LESS THAN 2.4m OR GREATER THAN 3.6m.
 - WHERE LENGTH WILL PERMIT, TWO (2) FREEWAY RAMP ARROWS SHOULD BE PLACED ON EXIT RAMP. THE NO. 1 ARROW SHOULD BE PLACED NEAR THE INTERSECTION OF THE RAMP AND THE SIDE ROAD (15m MIN.). THE NO. 2 ARROW SHOULD BE PLACED NOT LESS THAN 30m, BUT USUALLY NOT MORE THAN 75m BEYOND THE NO. 1 ARROW, WITH 45m-60m DESIRABLE. NO. 2 ARROW SHOULD NOT BE PLACED ON RAMP IN FRONT OF "EXIT" SIGN OR "EXIT" SIGN LOCATION IF GORE SIGN IS OVERHEAD. ARROWS SHOULD BE LOCATED IN FIELD WITHIN LIMITS MENTIONED ABOVE, TAKING ADVANTAGE OF RAMP GRADE AND ALIGNMENT.

- NOTE:**
- ← THIS ARROW ONLY INDICATES DIRECTION OF TRAVEL.
 - △ "NR" TO "C"
 - △ MODIFIED SPACING & NOTE 5 & ADDED NOTE 9
 - △ WHOLE SHEET
 - △ ELONGATED ARROWS & MODIFIED NOTE 4
 - △ ADDED C-6's
 - △ ADDED NOTE ABOUT ARROWS
 - △ ADDED METRIC

TAPER L DIMENSIONS

FOR SPEEDS 70km/h OR MORE
 $L = S \times W$

FOR SPEEDS 60km/h OR LESS
 $L = \frac{WS^2}{60}$

WHERE:
L = LENGTH IN METERS
S = 85TH PERCENTILE SPEED IN km/h
W = OFFSET WIDTH IN METERS

WEST VIRGINIA DIVISION OF HIGHWAYS

STANDARD DETAIL

CHANNELIZATION, WORD AND SYMBOL MARKINGS

INSTALLATION OF P, R AND C MARKERS

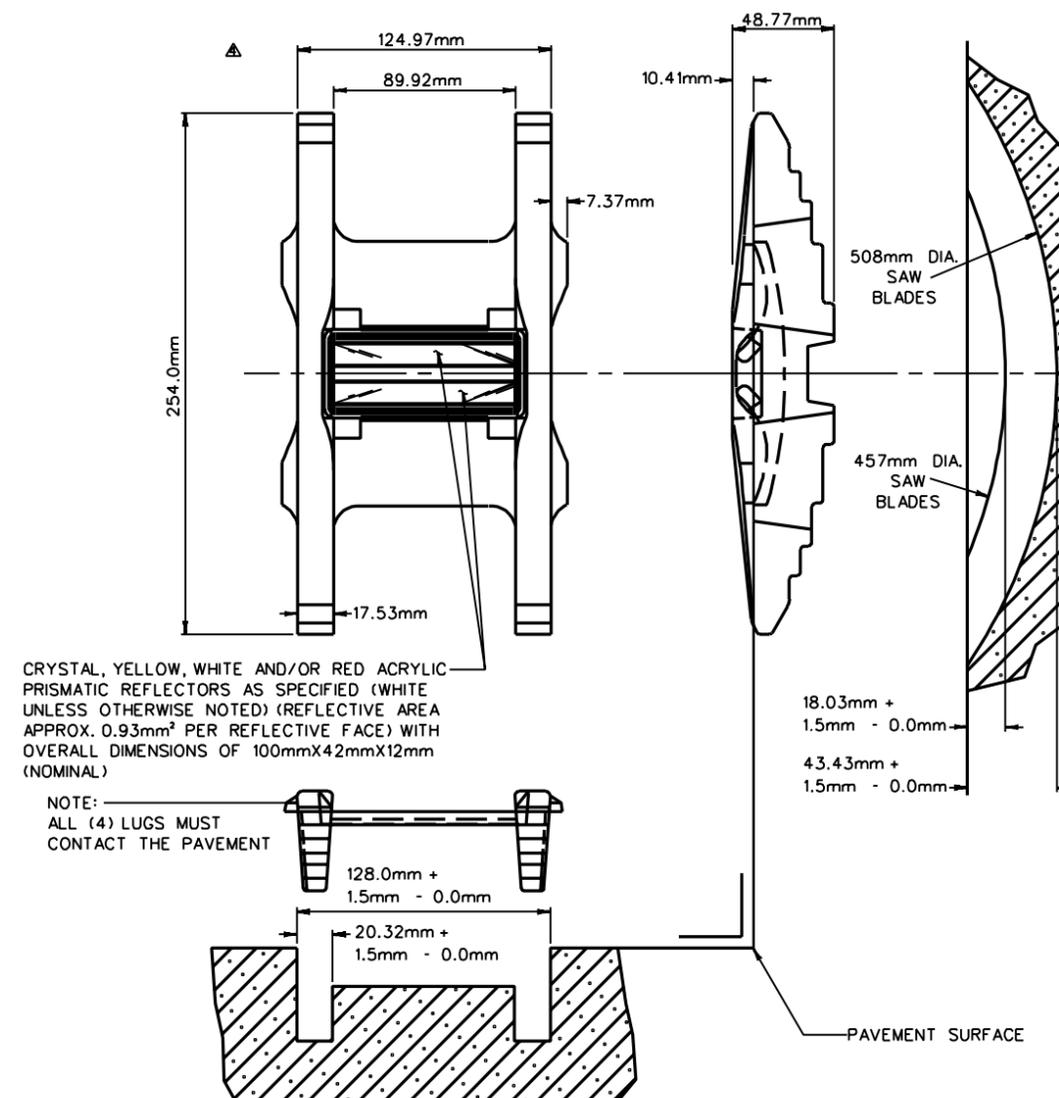
PREPARED: 07/00/71

REVISIONS
△ 04-09-75
△ 08-28-75
△ 11-23-77
△ 01-15-85
△ 06-30-89
△ 12-15-92
△ 12-09-93

STANDARD SHEET TEM-3

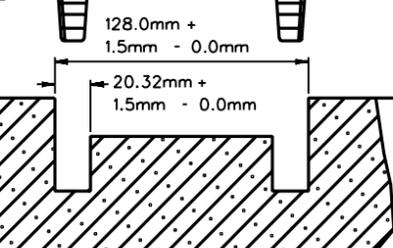
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
WV							

GENERAL NOTES

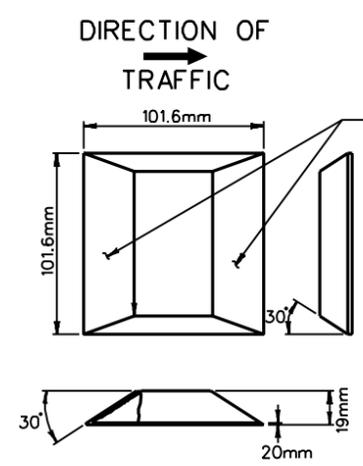


CRYSTAL, YELLOW, WHITE AND/OR RED ACRYLIC PRISMATIC REFLECTORS AS SPECIFIED (WHITE UNLESS OTHERWISE NOTED) (REFLECTIVE AREA APPROX. 0.93mm² PER REFLECTIVE FACE) WITH OVERALL DIMENSIONS OF 100mmX42mmX12mm (NOMINAL)

NOTE: ALL (4) LUGS MUST CONTACT THE PAVEMENT

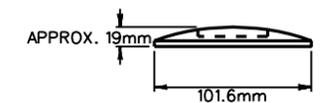


TYPE "P-2" MARKER
(WEIGHT APPROX. 2.5kg)

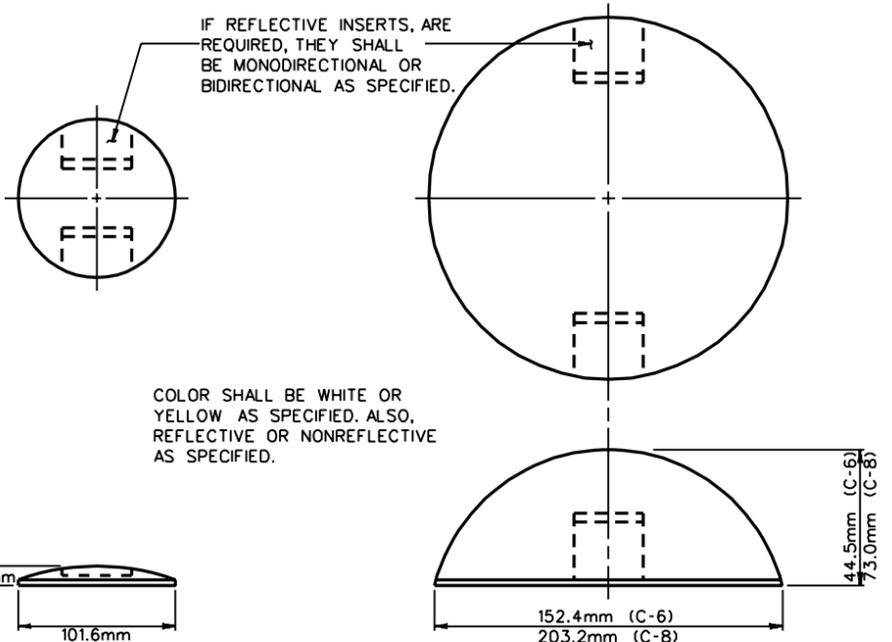


TYPE "R-4" MARKER

BIDIRECTIONAL OR MONODIRECTIONAL CRYSTAL, YELLOW AND/OR RED REFLECTORS AS SPECIFIED. (REFLECTIVE AREA APPROX. 2100mm² PER REFLECTIVE FACE)



TYPE "C-4" MARKERS
(C-4R OR C-4NR)



TYPE "C-6" AND "C-8" MARKERS
(C-6R OR C-6NR AND C-8R OR C-8NR)

IF REFLECTIVE INSERTS ARE REQUIRED, THEY SHALL BE MONODIRECTIONAL OR BIDIRECTIONAL AS SPECIFIED.

COLOR SHALL BE WHITE OR YELLOW AS SPECIFIED. ALSO, REFLECTIVE OR NONREFLECTIVE AS SPECIFIED.

- LOCATION OF MARKERS ARE SHOWN ON THE PLANS.
- TYPES "R" & "C" MARKERS ARE NOT TO BE APPLIED OVER PAINT STRIPING.
- TYPE "P" MARKER INSTALLATION:
 - THE PAVEMENT SHALL BE SAW CUT TO THE DIMENSIONS SHOWN IN OUTLINE AT LEFT.
 - A 48.5kw CONCRETE SAW IS RECOMMENDED FOR MAKING THE REQUIRED SAW CUT.
 - THE CONCRETE SAW SHALL BE FITTED WITH A GANG OF 457mm DIAMETER CONCRETE SAW BLADES, BORDERED BY 508mm DIAMETER BLADES AT EACH END.
 - EACH CUT SHOULD BE INSPECTED FOR PROPER FIT OF THE MARKER.
 - THE CASTING SHOULD HAVE APPROXIMATELY 3.2mm CLEARANCE (SIDE TO SIDE MOVEMENT) WHEN INSERTED INTO THE CUT.
 - ALL FOUR LEVELING LUGS MUST CONTACT THE PAVEMENT.
 - THE LEADING EDGES OF THE CASTING MUST LIE BELOW THE PAVEMENT SURFACE.
 - THE SAW CUT AREA MUST BE DRY AND FREE OF DUST, DIRT OR ANY MATERIAL WHICH WILL ADVERSELY AFFECT THE BOND OF THE ADHESIVE.
 - THE SURFACE OF THE KEEL AND WEB SHALL BE FREE OF SCALE, DIRT, RUST, OIL, GREASE OR ANY OTHER CONTAMINANT WHICH MIGHT REDUCE ITS BOND TO THE EPOXY ADHESIVE.
 - INSTALL THE MARKER WITH A MANUFACTURER'S APPROVED TWO COMPONENT EPOXY ADHESIVE, BY FIRST FILLING THE SAW CUT TO WITHIN APPROXIMATELY 9.5mm OF PAVEMENT SURFACE AND THEN PLACING THE MARKER BY HAND INTO THE EPOXY FILLED SAW CUT. AFTER PLACEMENT OF MARKER, EPOXY SHOULD BE FLUSH TO SLIGHTLY BELOW PAVEMENT SURFACE. EPOXY SHOULD NOT BE ALLOWED TO BUILD UP IN FRONT OF MARKER LENS.
 - MARKER IS TO BE SET IN SAW CUT IMMEDIATELY AFTER APPLICATION OF ADHESIVE AND MUST BE PROTECTED FROM TRAFFIC A MINIMUM OF 30 MINUTES OR UNTIL ADHESIVE HAS PROPERLY HARDENED.

- TYPE "R-4" MARKER INSTALLATION:
 - AREA OF APPLICATION MUST BE FREE OF OIL, GREASE, DIRT, CURING COMPOUND, LOOSE PARTICLES OR ANY OTHER MATERIAL WHICH WILL ADVERSELY AFFECT THE BOND OF THE ADHESIVE. THE PREFERRED METHOD OF SURFACE PREPARATION IS BY SAND BLASTING OR GRINDING THE ROAD SURFACE.
 - APPLY TO CLEANED PAVEMENT A QUANTITY OF EPOXY ADHESIVE SUFFICIENT TO COMPLETELY COVER BASE OF MARKER, AND FILL ANY IRREGULARITIES IN THE PAVEMENT. GENERALLY, A PAD BETWEEN 1.6mm AND 3.2mm THICK IS SUFFICIENT. AFTER PLACING THE MARKER ON THE ADHESIVE, ALL VOIDS IN THE ADHESIVE SHOULD BE ELIMINATED BY APPLYING PRESSURE ON THE MARKER UNTIL IT IS IN FIRM CONTACT WITH THE PAVEMENT. ADHESIVE AS RECOMMENDED BY MARKER MANUFACTURER SHALL BE USED. THE MARKER MUST BE PROTECTED FROM TRAFFIC UNTIL THE ADHESIVE HAS PROPERLY HARDENED.
- TYPES "C-4", "C-6", AND "C-8" MARKER INSTALLATION:
 - PREPARATION OF AREA OF APPLICATION SAME AS NOTE 4A ABOVE FOR TYPE R-4 MARKERS.
 - APPLICATION OF MARKER TO PAVEMENT SHALL BE BY EPOXY ADHESIVE SAME AS 4B ABOVE FOR TYPE R-4 MARKERS, EXCEPT THE EPOXY PAD FOR C-6 AND C-8 MARKERS SHALL BE 3.2mm TO 6.4mm THICK.
 - BUTTERING THE BOTTOMS OF THE MARKERS IS ADEQUATE FOR SMALL JOBS. A TEMPLATE IS RECOMMENDED FOR GREATER EFFICIENCY. APPROXIMATELY 1/16" (.15 CM) OF ADHESIVE IS REQUIRED TO PROPERLY BOND. THE MARKER IN PLACE FOR C-4's; FOR C-6's AND C-8's USE 3.2mm TO 6.4mm.
 - IMMEDIATELY AFTER THE ADHESIVE IS APPLIED, PLACE THE MARKER ONTO THE PATCH OF ADHESIVE. PRESS DOWN GRADUALLY AND CAREFULLY UNTIL A BEAD OF ADHESIVE FORMS ALL AROUND THE OUTSIDE OF THE MARKER.
 - A COARSE PAVEMENT TEXTURE WILL REQUIRE SLIGHTLY MORE ADHESIVE.
 - MARKER MUST BE PROTECTED FROM TRAFFIC UNTIL ADHESIVE HAS PROPERLY HARDENED.

- △ ADDED TYPE P-2 MARKERS
- △ REVISED P-2 DIMENSIONS
- △ REVISED P-2, R-4, C-4, C-8 MARKERS
- △ REVISED P-2, ADDED C-6
- △ ADDED METRIC

WEST VIRGINIA DIVISION OF HIGHWAYS

STANDARD DETAIL

PAVEMENT MARKERS

TYPES "P", "R" & "C"

PREPARED: 07/00/71

REVISIONS
03-00-73
06-00-74
04-22-75
△ 11-23-77
△ 11-10-81
△ 09-05-84
△ 12-10-92

STANDARD SHEET TEM-4